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ANNUAL REPORT

OF THE

WIRE DEPARTMENT

YEAR 1904

BOSTON
MUNICIPAL PRINTING OFFICE
1905

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1 Dec. 1910
DEPARTMENT OF ARCHITECTURE,
HARVARD UNIVERSITY.
Gift of
The Department
782

T' K

OFFICE OF THE COMMISSIONER OF WIRES,
11 WAREHAM STREET, BOSTON, February 1, 1905.

HON. PATRICK A. COLLINS,
Mayor of the City of Boston:

SIR, — In compliance with chapter 3, section 24, Revised Ordinances of 1898, I herewith submit the annual report of the Wire Department showing the appropriation, expenditure, and work performed from February 1, 1904, to February 1, 1905.

The work of clearing the streets prescribed for the year 1904 has progressed favorably, although some work remains to be performed by the companies in order that the condition of the streets may comply with the law.

During the year a law has been passed relating to licensing and inspection of theatres and public halls, which has made additional work for this department. In this connection would say that the necessary inspections have been made, and call your attention to that part of the report referring to the Interior Division, which has had supervision of the work called for under the law, in which fuller details will be found.

We have not been able to give old wiring and isolated plants that inspection which they should receive, and, if possible, the force of the department should be increased. It is hoped that an appropriation large enough to cover this extra expense may be made.

In prescribing streets from which poles and overhead wires are to be removed during the year 1905 we have taken those considered the most important in the East Boston and Charlestown districts of the city. Further details will be found under the head of Exterior Division.

The department has worked with the end in view that all persons having business dealings with it should receive courteous treatment consistent with the carrying out of the law relating to this department.

Details of department work, etc., will be found under their appropriate headings.

Yours respectfully,

PATRICK J. KENNEDY,

Commissioner of Wires.

EXTERIOR DIVISION.

The district from which poles and overhead wires were ordered removed during the year 1904 was that portion of Washington street between Dudley street and Keyes street, Roxbury.

On this street, beside the iron poles of the Boston Elevated Railway Company, used for the support of their feeder, span and guard wires, was a line of wooden poles on each side of the street, one line owned by the New England Telephone and Telegraph Company and the other line owned by the American Telephone and Telegraph Company.

On these poles were Telephone, Fire-alarm, Police Signal and Edison Electric Illuminating Company wires.

The poles of the American Telephone and Telegraph Company, carrying long-distance telegraph and telephone wires, are exempt by law, consequently one line of poles will remain on the street.

The whole number of poles on the street at the commencement of the year, not including the iron trolley poles of the Boston Elevated Railway Company, which it will be necessary to maintain until the elevated structure is completed through the street, was one hundred and ninety-one (191).

The total amount of wire on and over the street was about one hundred and ninety (190) miles.

It was mentioned in the annual report for 1903 that, owing to the severe winter, the removal of poles and wires in the district had been delayed, and in consequence of which the companies had been granted an extension of time in which to complete this work; the work was completed early in the year 1904.

In this report will be found photographs showing the condition of streets in the 1903 underground district before and after the removal of the poles and wires; also a plan showing the locations of poles and wires on and over that portion of Main street, Charlestown, and Meridian street, East Boston, which is in the 1905 underground district.

The notices of new work received from the various companies show a large increase over previous years, the examination of which has occupied much of the time of the inspectors. These inspections are made when possible while the installation is in progress.

Close attention has been given to low tension wires entering buildings, to see that suitable devices are provided to

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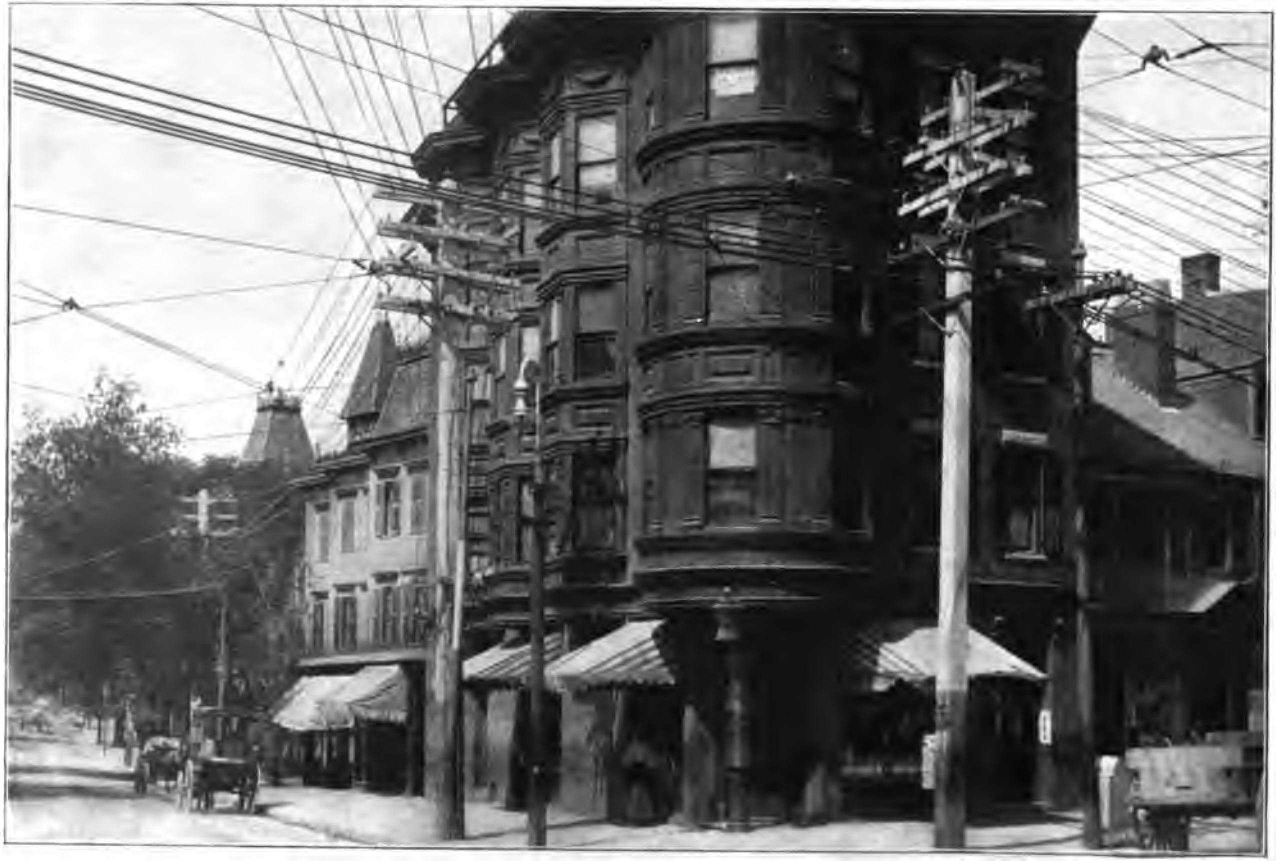
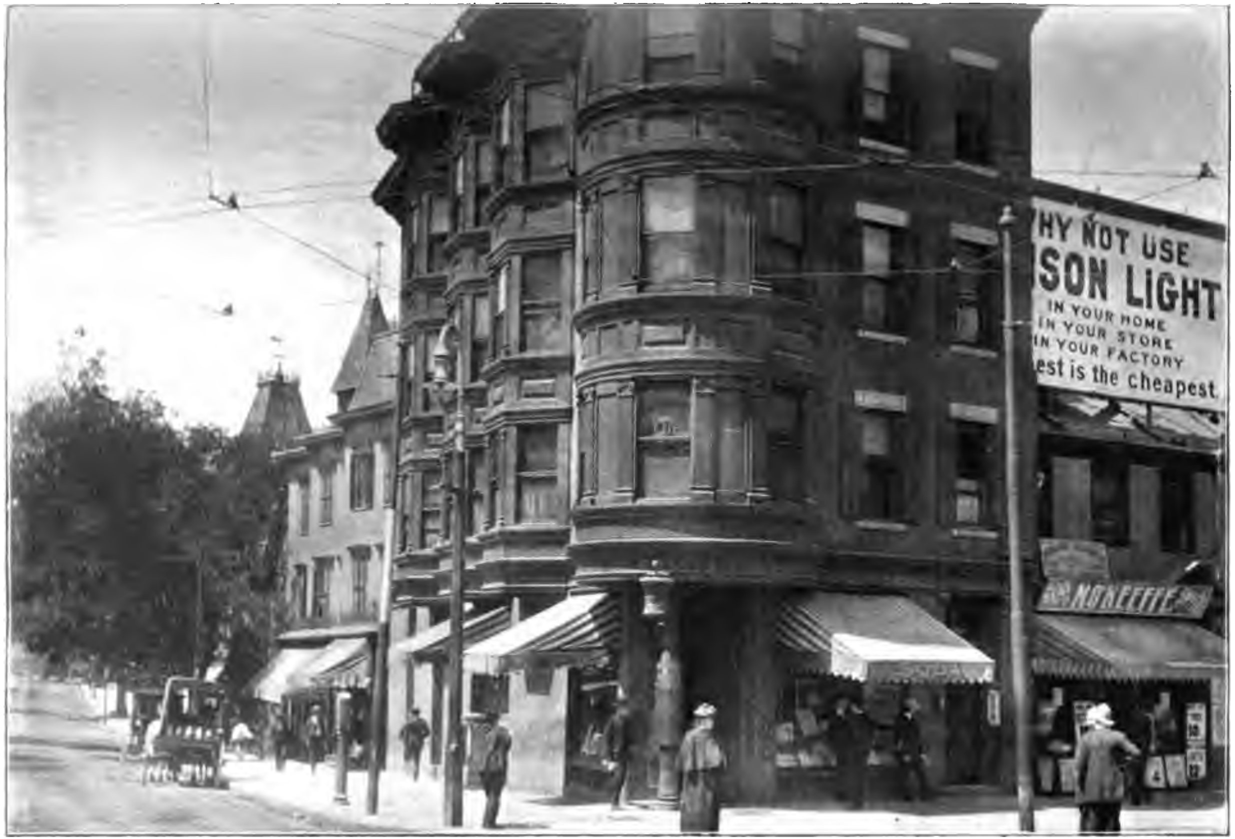


BROADWAY AND DORCHESTER STREET, SHOWING CORNER WITH POLES AND WIRES.



BROADWAY AND DORCHESTER STREET, SHOWING CORNER AFTER POLES AND WIRES WERE REMOVED.

Plate No. 2.

than just warm to the touch, but they seemed to warm slightly and evenly at the point where the heat was most needed. With the direct current the results were much the same, though perhaps not quite as satisfactory as connected up at that time, requiring a little more time to accomplish the same work.

All the experiments were tried on the regular lead service pipes, and most of them were of five-eighths inch in diameter. Taken as a whole the trials were considered successful, though, of course, doing the work in this manner, the engineers were dependent entirely on the Edison Electric Illuminating Company for current, and the apparatus was for that reason useless on streets that were removed any great distance from the Edison overhead or underground lines.

Last August, during the National Grand Army encampment in our city, electricity contributed quite largely towards the success of the occasion. Several plans were considered by the committee on decoration, the plan as adopted covering practically all of Boston Common, Public Garden, and Commonwealth avenue between Arlington street and Exeter street. The decorations consisted of festoons, clusters and emblems composed of laurel, and studded with incandescent lamps of red, white and blue, so that the promenade from the corner of Park and Tremont streets, or Beacon Hill to the corner of Commonwealth avenue and Exeter street, was ablaze with thousands of electric lights.

The portion of this work which most concerned this department, of course, was the method and manner of installation, that everything be made perfectly safe, and that no accident of an electrical nature mar the enjoyment of the occasion; therefore special attention was given to the installation throughout the entire time of installing and operating the lights. Current was supplied for the lights by a number of special underground connections made at various points convenient to the undergound system. On the avenue connections were made at each of the cross streets, thus avoiding the necessity of crossing the streets overhead; for the Common, a service was taken from the manhole, at the corner of Charles and Boylston streets, to a pole set up inside the fence line near that corner, and the three main wires were carried from there through the trees on suitable insulators along the Charles-street mall, and then across on temporary poles set in the parade ground to a point near the foot of the hill on which stands the soldiers' monument, where a transformer house was erected. This consisted of a platform, raised several inches from the ground, built around a pole, and closed in by a wall about eight feet high; thus the high-tension wires were brought direct from the underground system to the transformers apart from all other wiring, and then the lights were all fed and controlled from this point. An oil switch was installed in the high-tension circuit at the first pole back of the transformers, so that in case of any trouble occurring at the transformers the current could be entirely cut off without any great delay.

This source of supply was for all the lights on the Common, including the soldiers' monument and the two large search-lights, which were kept playing on a large American flag suspended in mid-air over the middle of the Common.

Connections were made for the lights on the Public Garden in much the same manner, a service being taken from the underground system on Charles street, at the centre gate of the Garden, and carried to a pole inside the fence; thence, overhead, through trees, to a point near the bridge, where the wires were again brought down underground along the path to a platform erected between the piers of the bridge, over the water, where a large switchboard was set up, and the various circuits distributed throughout the Garden.

Arrangements were made whereby the lights could be changed from red, white, or blue, or all together, at the will of the operator.

There were, altogether, on the Common, Public Garden and Commonwealth avenue, upwards of twenty-five thousand incandescent lamps of four and eight candle-power; the current consumption for the eight nights' use was about nineteen thousand five hundred (19,500) kilowatt hours.

On the Friday evening previous to encampment week representatives of the committee of the Edison Electric Illuminating Company and of this department were present when an official test was made of the various circuits, and when the entire load was turned on, and from this time until the close of the exhibition no trouble of any consequence was reported on any portion of the work, and the effect of the electricity, together with the beautiful floral display in the garden, was such as called for praise from all who viewed it.

In the report of 1903 mention was made of the fact that the work of relocating the undergound ducts, etc., along State street in the line of the East Boston tunnel was practically completed. This year we can report that this work has all been completed in a satisfactory manner, as also the work of constructing the conduits for electric cables, wires, etc., for the transmission of electricity to East Boston, via the tunnel.

This conduit construction is perhaps the most important piece of underground work accomplished during the past year, as it not only provides for electricity in the tunnel itself for the purpose of operating the cars, lights, etc., but also provides a means of carrying the electric light, telephone, telegraph, fire-alarm and police signal wires into this island district, other than the old, uncertain method of submarine and overhead cables and wires.

This system, as installed by the Boston Elevated Railway Company, consists of a central conduit of twelve ducts, beginning at Scollay square and running to the Court square station, where it is divided into two conduits of six ducts each, laid along the edge of either side of the tunnel to the Devonshire-street station. Here the number of ducts is again changed, and nine ducts are laid on each side as far as the Atlantic chambers at State street and Atlantic avenue. At this point the situation is entirely changed, and the company not only provides for themselves, but also for the Edison Electric Illuminating Company and the Low Tension companies in two separate conduits. The tunnel here is about sixty feet below the surface of State street, and on each side of the station thirty wrought-iron three-inch pipes have been laid in the walls of the shaft from the separate manholes of the Boston Elevated Railway Company, Edison Electric Illuminating Company, and the New England Telephone and Telegraph Company, at the street surface to those built in the station platform below; the conduits are then continued from these manholes through the tunnel to the manholes of the various companies at the street surface in Maverick square, East Boston, in the following manner: Along each side of the tunnel a nine-duct conduit was built to be leased to the Edison and Telephone companies respectively. Then, in the centre of the tunnel, for the use of the Boston Elevated Railway Company, is a double conduit of sixteen ducts. In the entire subway and tunnel from Scollay square to Maverick square there is a total of nineteen thousand nine hundred and seventy-nine (19,979) feet of conduit, or two hundred nine thousand four hundred thirty-one (209,431) feet of single duct, with ninety-two (92) manholes. It will be seen that this method of carrying the high and low tension wires to East Boston opens up new opportunities for the district, as now the electric current can be relied upon at all times, where it could not be in the old method of transmission. Twice during the past year East Boston has been entirely cut off, as far as electric light was concerned, owing to large fires in Charlestown, the wires running by the localities and being more or less damaged or interfering with the firemen, necessitating cutting off the current.

Table showing the overhead work from February 1, 1904, to January 31, 1905, inclusive:

Permits granted by the Board of Aldermen to set poles,	77
Number of poles included in the above orders . .	232
Permits granted by the Board of Aldermen to remove poles	46
Number of poles included in these orders . .	95
Number of streets or avenues included in all above orders	116
Number of new poles set in new locations . .	211
Number of poles removed	256
Number of poles re-set	560
Number of new pole locations selected . . .	831
Number of poles now standing	15,094
Amount of wire removed by Wire Department (in feet)	251,790
Fixtures and outriggers removed by Wire Department	141
Defect notices sent out	1,615
Number of defects included in these notices . .	5,431
Defects reported corrected	4,579
Notices of new work and special inspections . .	6,697
Amount of wire removed by owners, as reported (in feet)	2,931,237

Orders granted by the Board of Aldermen pertaining to overhead or underground wires, but not included in the above table:

Police signal-post locations	4
Fire-alarm post and test-box locations . . .	16
Extension of street railways, tracks, etc. . .	6
Transfer of poles from one company to another .	6
Extension of time for erecting poles . . .	4
Erection of derricks	35
Moving buildings, etc.	12
Making a total of	84

The following is a list of the companies and individuals doing underground work during the year 1904:

For Electric Light and Power Purposes.

Boston Elevated Railway Company.
Brookline Gas Light Company.
Coffin and Tabor Company.
Edison Electric Illuminating Company.

For Telephone, Telegraph, Signalling, and Other Purposes.

Boston Auxiliary Fire Alarm Company.
Boston and Albany Railroad.
Boston Low Tension Wire Association.
Fire-alarm Branch (Boston Fire Department).
Massachusetts Telephone and Telegraph Company.
New England Telephone and Telegraph Company.
Police Signal Service (Boston Police Department.)
Postal Telegraph-Cable Company.
Western Union Telegraph Company.

The following companies have laid no new duct lines, but have drawn some new cables into their old ducts:

Boston Automatic Fire Alarm Company.
Boston District Messenger Company.
Holmes Electric Protective Company.
Mutual District Messenger Company.
Stock Quotation Telegraph Company.

The following companies and individuals, doing underground work in 1903, have made no additions to their underground systems during the year:

Institutions Department (City of Boston).
Old Colony Street Railway Company.
B. B. Perkins, West Roxbury.

In that portion of the city north of Dover street, or the original underground district, fifty-one (51) different streets have been opened during the year by the various companies for the purpose of building new conduits, enlarging or extending their old ones, as owing to the increase in business it is found necessary every year to add to the facilities for underground distribution in this section of the city.

Besides these, about thirty-two (32) different streets have been opened for the purpose of building new conduits in the rest of the city proper and the suburban districts.

The department has electrically approved fourteen hundred and twenty-eight (1,428) permits for underground work during the year, and six thousand and seventy-three (6,073) inspections have been made on the same.

Underground terminal poles have been established by the various companies at the following places:

By the Boston Elevated Railway Company.

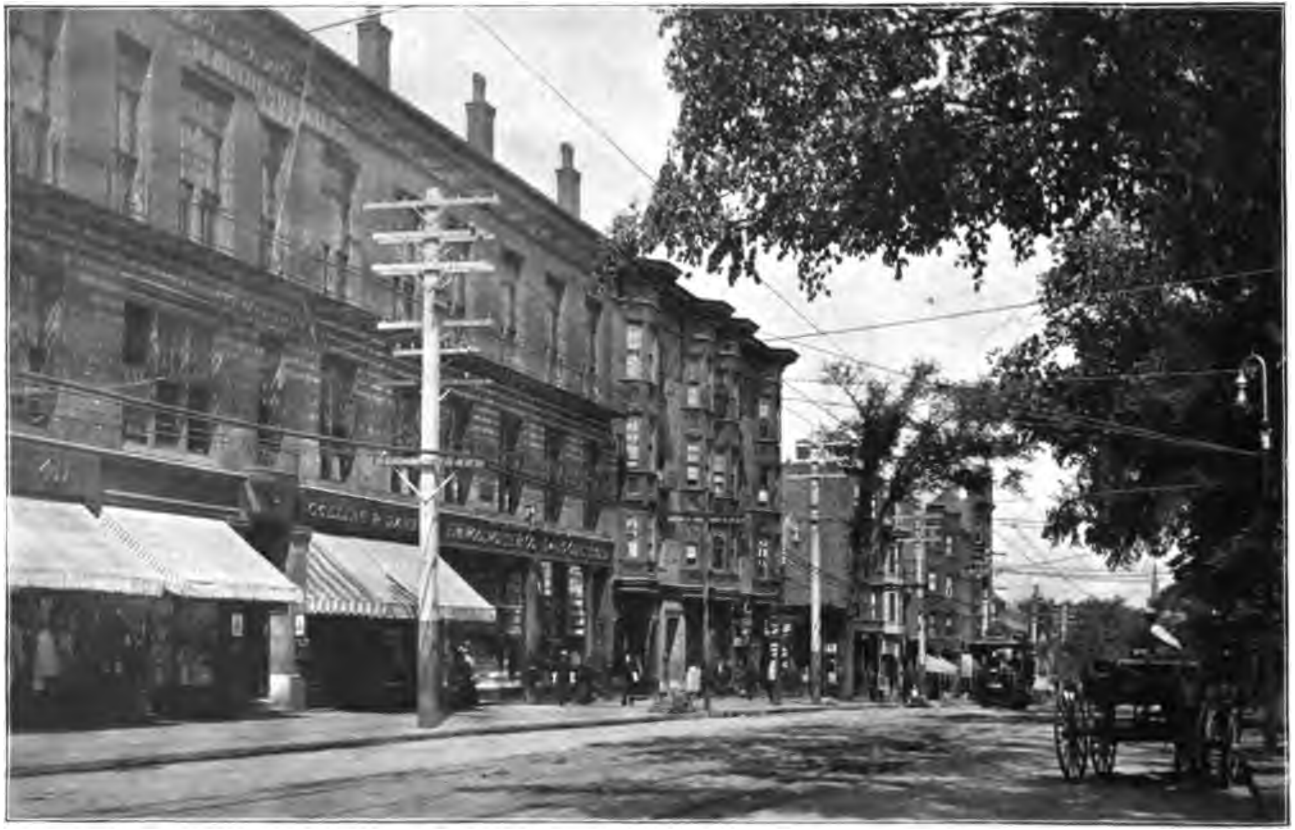
Dorchester street, near Fifth street, South Boston.
On "L" structure at Shawmut avenue and Castle street.

By the Edison Electric Illuminating Company.

West Fourth street, at Dorchester street, South Boston.
South street, at Walk Hill street, West Roxbury.
Washington street, at Walk Hill street, West Roxbury.
Walk Hill street, at South street, West Roxbury.
South street, at private way, West Roxbury.
Glen road, opposite Washington street, Roxbury.
Green street, near Washington street, Roxbury.
Circuit street, near Washington street, Roxbury.
Washington street, at Keyes street, Roxbury.
Williams street, at Washington street, Roxbury.
Marcella street, at Washington street, Roxbury.
Columbus avenue, near Washington street, Roxbury.
School street, near Washington street, Roxbury.
Forest Hills street, near Washington street, Roxbury.
Warren street, at Dudley street, Roxbury.
Hemenway street, at Public Alley No. 901, Back Bay.

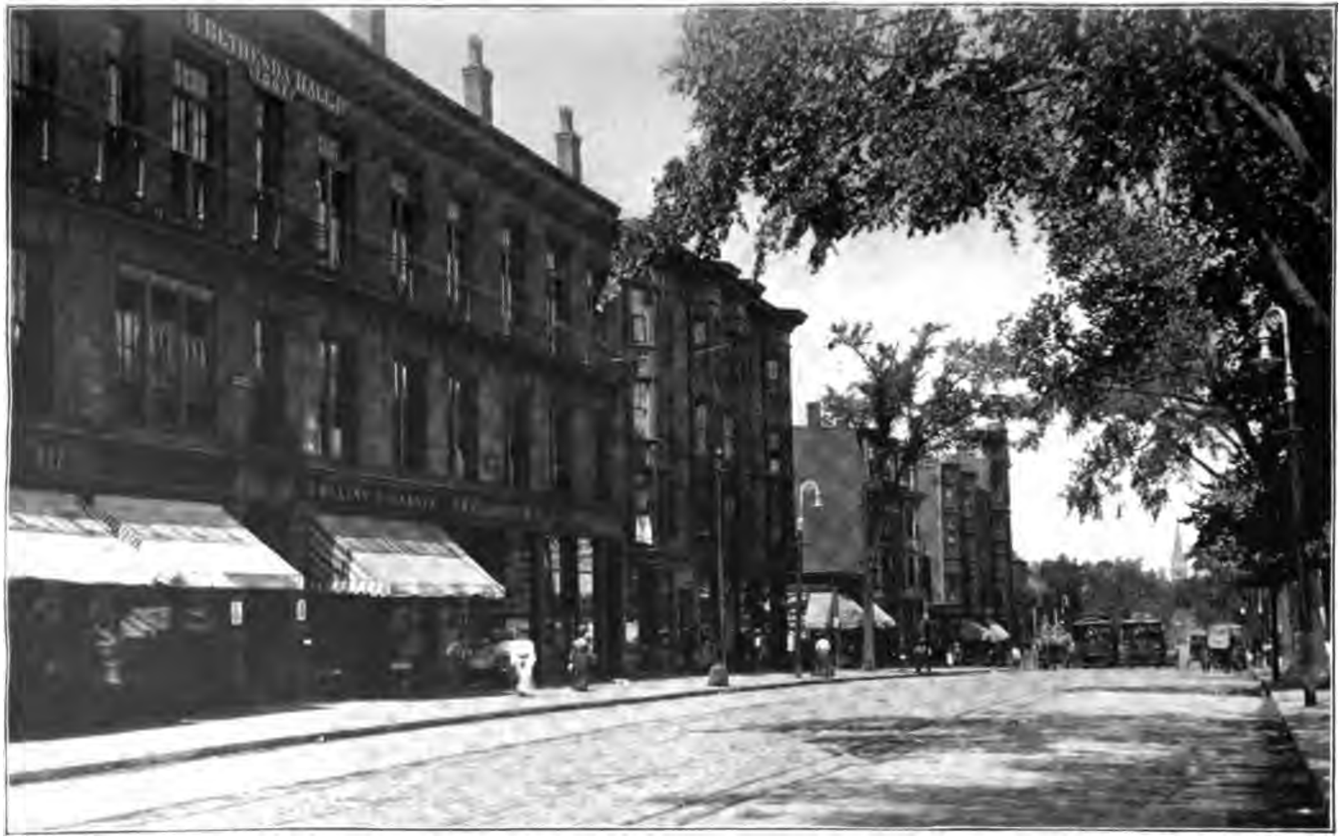
By the New England Telephone and Telegraph Company.

Dorchester avenue, at Gibson street, Dorchester.
" " at Mather street, Dorchester.
" " at Dix street, Dorchester.
" " at Centre street, Dorchester (2 poles).
" " at Edwin street, Dorchester.
" " at Richmond street, Dorchester.
Stoughton street, at Bakersfield street, Dorchester.
" " at Everett avenue, Dorchester.
" " at Pleasant street, Dorchester.
Washington street, opposite Rosedale street, Dorchester.
Erie street, at Washington street, Dorchester.
Wheatland avenue, at Washington street, Dorchester.
Bowdoin avenue, near Washington street, Dorchester.
Elmore street, near Washington street, Roxbury.
Neponset avenue and Adams street, Dorchester.
River street, near Oakland street, Mattapan.
Linden Park, at Cabot street, Roxbury.
Crawford street, at No. 35, Roxbury.
Homestead street and Elm Hill avenue, Roxbury.
Devon street, at Blue Hill avenue, Roxbury.
Devon street, at private way, Roxbury.



BROADWAY AT F STREET, BEFORE POLES AND WIRES WERE REMOVED

Plate No. 1



BROADWAY AT F STREET, AFTER POLES AND WIRES WERE REMOVED.
Plate No, 4.

Lawrence avenue, opposite No. 23, Roxbury.
Wabon street, near Warren street, Roxbury.
Cobden street, near Washington street, Roxbury.
Columbus avenue, near Washington street, Roxbury (2 poles).
Renfrew street, near Harrison avenue, Roxbury.
Brookline avenue, near Jersey street, Roxbury.
Washington street, near Keyes street, Roxbury.
School street, at Washington street, Roxbury.
Beethoven street, at Washington street, Roxbury.
Sargent street and Howard avenue, Roxbury.
Marcella street and Washington street, Roxbury.
Boylston street and Washington street, Roxbury.
School street and Washington street, Dorchester.
Circuit street, near Washington street, Roxbury.
Grosvenor place and Washington street, Roxbury.
Westminster avenue, near Washington street, Roxbury.
St. James street, near Washington street, Roxbury.
Oakland street and Washington street, Roxbury.
Gaston street and Warren street, Roxbury.
Iffley road and Washington street, Roxbury.
Vale street and Dorchester street, South Boston.
West Eighth street, at F street, South Boston.
Batavia street and Hemenway street, Back Bay.
Chelsea street, at Maverick square, East Boston.

During the year the Fire Alarm Branch (Boston Fire Department) has erected nine (9) lamp-posts, each of which supports a signal box; they have also located four (4) test boxes, located nine (9) boxes on poles and two on engine houses; all of these connected underground with their own or the conduits of the New England Telephone and Telegraph Compay.

The Police Signal Service (Boston Police Department) has erected fourteen iron posts during the year, each of which supports a signal-box; they have also placed one test-box; these are all connected under ground with their own or the conduits of the New England Telephone and Telegraph Company.

The Boston Low Tension Wire Association consists of the following companies, as reported from year to year: Boston Automatic Fire Alarm Company, Boston District Messenger Company, Boston Electric Protective Association, Mixer Bros., Mutual District Messenger Company, Holmes Electric Protective Company, Postal Telegraph-Cable Company, Stock Quotation Telegraph Company and United Telegram Company.

New conduits have been built during the past year in the following streets, the companies owning, with the number and style of ducts used in each case, being as follows:

Drawing-in System of the Edison Electric Illuminating Company.

Street	From	To	No. of Ducts.	Type.
A	Melcher	Wormwood	9	Vit. clay
Atlantic ave.	Oliver	Congress	12	“ “
Beach	At Utica		1	Wrgt. iron
Boylston	At Charles		6	Vit. clay
Boylston	At Dartmouth		6	“ “
Broad	At Franklin		1	Wrgt. iron
Broadway	Foundry	Dorchester ave.	1	“ “
Canal	No. 17	Market	1	Vit. clay
Chatham	At Butler sq.		6	“ “
Chatham row	Butler row	Edison station	6	“ “
Chatham row	State	Butler row	6	“ “
Columbia road	L	East Eighth	1	Wooden
Columbia road	At East Ninth		1	“
Columbus ave.	At Berkeley		6	Vit. clay
Cooper	Salem	North Margin	1	Wrgt. iron
Court sq.	At Court		2	“ “
Dock sq.	At Exchange		4	Vit. clay
Franklin	At Pearl		6	“ “
Harvard	At Tyler		1	Wrgt. iron
Hawkins	Sudbury	Edison Station	16	Vit. clay
Huntington ave.	No. 209	Norway	2	“ “
Hudson	No. 5	Beach	1	Wrgt. iron
L	At Power Station		12	Vit. clay
Massachusetts ave.	Washington	Harrison ave.	4	“ “
Massachusetts ave.	Near Falmouth		6	“ “
Merchants row	Chatham	Faneuil Hall sq.	24	“ “
Meridian	Maverick sq.	Central sq.	12	“ “
North Bennett	Salem	Hanover	2	“ “
Pittsburg	Congress	North	1	Wrgt. iron
Sharon	Harrison ave.	Albany	1	“ “
Shawmut ave.	At Castle-st. bridge		3	“ “
State	Chatham row	Merchants row	9	Vit. clay
State	Atlantic ave. westerly		9	“ “
South	Walk Hill	Private way	2	“ “
South Margin	Hall	Norman	1	Wrgt. iron
Summer	At Chauncy		30	Vit. clay
Summer	At Atlantic ave.		6	“ “
Summer	At No. 82		2	Wrgt. iron
Walk Hill	South	Washington	2	Vit. clay
Washington	At Water		1	Wrgt. iron
Worthington	Longwood ave.	Fenway	2	Vit. clay
West Walnut pk.	Washington	Columbus ave.	1	“ “

Solid System of Edison Electric Illuminating Company.

Street.	From	To	Type.
A	At Wormwood		1000 tube
Allen	No. 37	Blossom	200 “
Allston	Bowdoin	Bulfinch	200 “
Arch	Franklin	Bussey pl.	Box
Battery	Hanover	Commercial	200 tube
Berkeley	Across Providence		350 “

Street.	From	To	Type.
Blackstone	At North		Catch-box
Blossom	Allen	Fruit	200 tube
Boylston	Opp. St. Cecelia		250 "
Boylston	Opp. Exeter		300–350–1000 "
Boylston	Opp. Fairfield		200 "
Brattle	At Brattle sq.		300 "
Cedar (W)	No. 90	Cambridge	200 "
Columbus ave	At Massachusetts ave.		350 tube
Congress	At Atlantic ave.		200 "
Cornhill	At Franklin		Catch-box
Dartmouth	At No. 274		"
Eliot	At Washington		750 tube
Fayette	No. 17	Pleasant	250 "
Franklin	At Congress		350 "
Green	At Norman		200–350 "
Huntington ave.	At Norway		250 "
Kneeland	At Washington		350 "
Marlboro	Massachusetts av.	Charles Gate East	200 tube
Merrimac	At Norman		200–350 "
Prince	At Salem		350 "
Providence	Opp. Church		350 "
St. Botolph	At West Newton		250 "
Summer	At Atlantic ave.		750 "
Temple pl.	At Washington		750 "
Tremont	At Court		200 "
Tremont	Near Northampton		250 "
Tremont	No. 504	Dover	200 "
Waltham	Harrison ave.	Washington	250 "
West	At Mason		1000 "

New England Telephone and Telegraph Company.

Street.	From	To	No. of Ducts.	Type.
Beach	At Hudson			
Blue Hill ave.	Lawrence ave.	Warren	4	Vit. clay
Congress	High	Dorchester ave.	6–12	" "
Chisholm park	Warren	Private way (rear)	2	" "
Copeland	No. 12	Warren	2	" "
Dorchester ave.	Park	Ashmont	6	" "
Dorchester ave.	Mercer	Seventh	1	Wrgt. iron
Dorchester ave.	Congress	Fort Point Channel	6	Vit. clay
Devon	Blue Hill ave.	Private way (rear)	2	" "
Lawrence ave.	Blue Hill ave.	Private way (rear)	2	" "
Magnolia	Dudley	Magnolia sq.	3	" "
Maverick sq.	Meridian	Tunnel entrance	7	" "
Meridian	Bridge	Draw	6	Wooden
State	Broad	Atlantic ave.	3–7–9	Vit. clay

Police Signal Service (Boston Police Department).

Street	From	To	No. of Ducts.	Type.
Commonw'th ave.	At Beacon		1	Wrgt. iron
Thompson sq.	Near Warren ave.		1	" "

Fire-alarm Branch (Boston Fire Department).

Street	From	To	No. of Ducts.	Type.
Cedar	Washington	Thornton	1	Wrgt. iron
Dale	At Washington		3	" "
Essex	At Hersey place		1	" "

Boston Elevated Railway Company.

Street	From	To	No. of Ducts.	Type.
Shawmut ave.	At Boston & Albany R.R. bridge		9	Vit. clay
Atlantic ave.	And State		12	" "

Postal Telegraph-Cable Company.

Street	From	To	No. of Ducts.	Type.
Devonshire	No. 220	Summer	1	Wrgt. iron
Milk	Congress	Pearl	1	" "
State	Near Atlantic ave.		3	" "
State	At Atlantic ave.		1	" "

Boston & Albany Railroad Company.

Roadbed along Albany street and Broadway extension 1 Wrgt. iron

Boston Low Tension Wire Association.

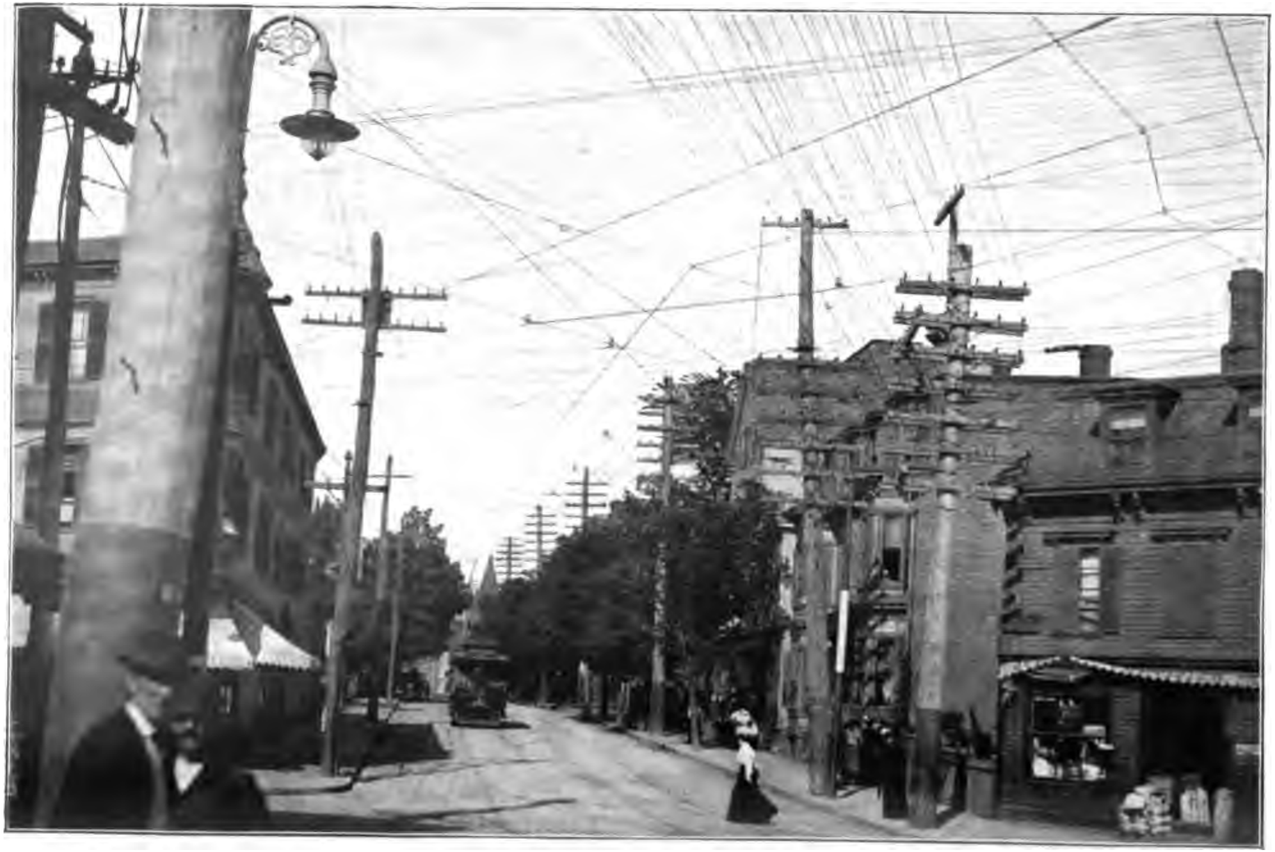
Street	From	To	No. of Ducts.	Type.
Berkeley	Columbus ave.	Stanhope	1	Wrgt. iron
Central	Broad	No. 35 Central	1	" "
Fayette	Bay	Ferdinand	1	" "
Ferdinand	Isabella	Chandler	1	" "
Isabella	Ferdinand	Columbus ave.	1	" "

Coffin and Tabor Company.

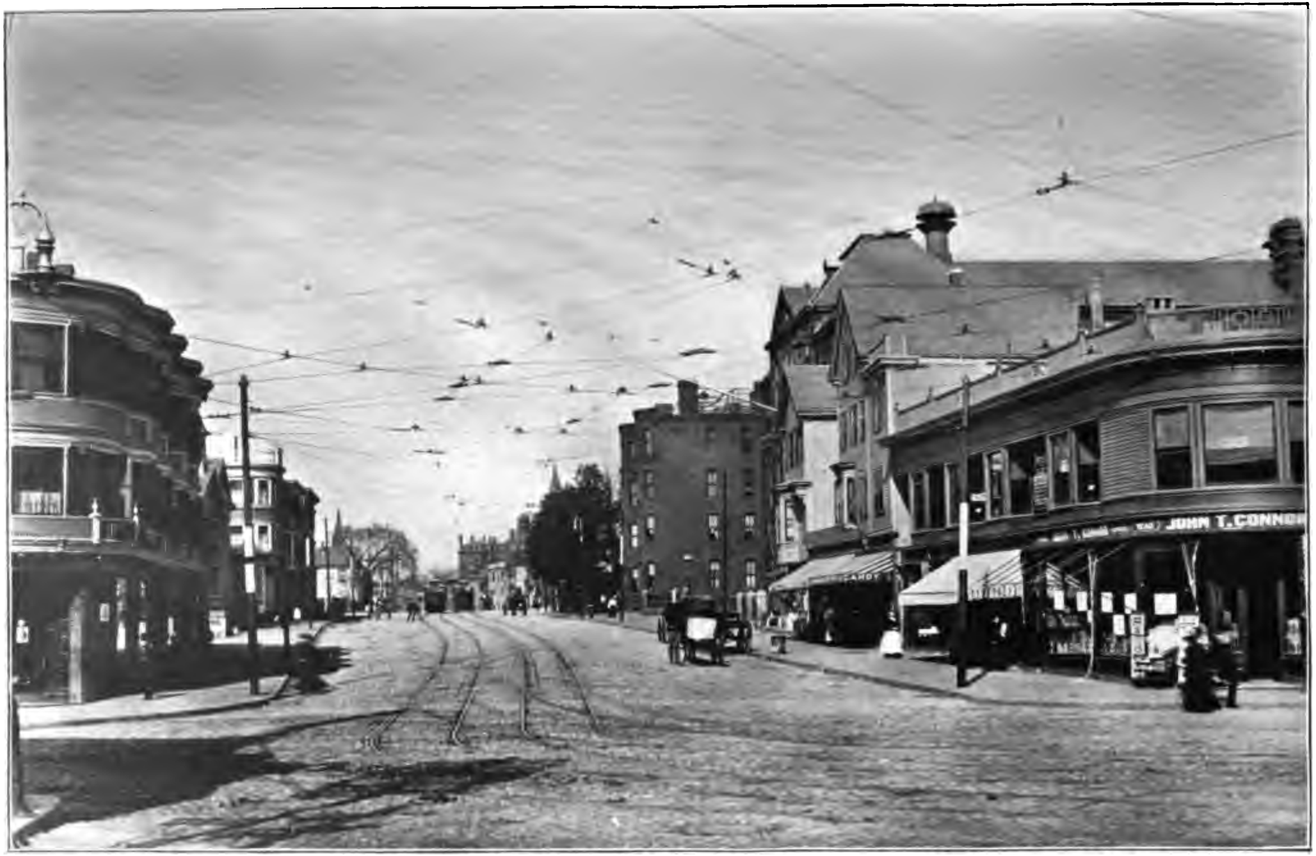
Street	No. of Ducts.	Type.
Congress at No. 275	2	Wrgt. iron

Character of Cables Used by the Various Companies.

COMPANY.	Kind of Insulation.	Sizes.
Boston Automatic Fire Alarm Co.	Rubber............	14 conductors.
Boston Auxiliary Fire Alarm Co.	Rubber............	4 conductors.
Boston Elevated Railway Co......	Rubber and paper.	From No. 8 to 1,000,000 C.M.
Boston District Messenger Co.....	Rubber and paper.	From 2 to 6 conductors.
Coffin & Tabor Co................	Rubber............	250,000 C.M.
Edison Electric Illuminating Co.	Rubber and paper.	From No. 6 to 500,000 C.M.
Fire Alarm Branch (B. F. D.).....	Rubber............	From 5 to 19 conductors.
Holmes Electric Protective Co....	Rubber............	From 2 to 12 conductors.
Massachusetts Tel. and Tel. Co...	Paper.............	25 pair.
Mutual District Messenger Co.....	Rubber and paper.	From 6 to 50 conductors.
New England Tel. and Tel. Co....	Paper.............	From 15 to 400 pair.
Police Signal Service (B. P. D.)..	Rubber............	7 conductors.
Postal Telegraph-Cable Co........	Paper.............	From 10 to 30 conductors.
Western Union Telegraph Co.....	Rubber and paper.	10 to 100 conductors.
Stock Quotation Telegraph Co....	Paper.............	50 conductors.



DORCHESTER STREET, FROM ANDREWS SQUARE, BEFORE POLES AND WIRES WERE REMOVED



DORCHESTER STREET, FROM ANDREWS SQUARE, AFTER POLES AND WIRES WERE REMOVED.

Plate No. 6.

Table showing the Underground Work of the Year 1904.

COMPANY.	Feet of Conduit.	Feet of Duct.	Feet of Cable.	Number of Manholes.	Number of Services.
Boston Automatic Fire Alarm Co.	....	....	1,710	......	....
Boston Auxiliary Fire Alarm Co.	....	436	1,882	......	6
Boston & Albany R. R.	200	200	....	......	1
Boston Elevated Railway Co.	20,277	210,560	60,811	94	6
Boston District Messenger Co.	....	....	2,120	......	....
Boston Low Tension Wire Association	1,572	2,741	....	5	11
Brookline Gas Light Co.	....	358	1,914	......	7
Coffin & Tabor	75	150	180	......	1
Edison Electric Illuminating Co.	9,547	63,987	174,762	42	440
Fire Alarm Branch (B. F. D.)	469	2,537	21,916	3	28
Holmes Electric Protective Co.	....	....	755	......	....
Massachusetts Telephone and Telegraph Co.	....	275	2,590	......	7
Mutual District Messenger Co.	....	....	1,825	......	....
New England Telephone and Telegraph Co.	13,329	81,083	161,671	27	105
Police Signal Service (B. P. D.)	51	1,095	50,555	......	25
Postal Telegraph-Cable Co.	1,019	1,519	1,135	4	1
Western Union Telegraph Co.	....	271	2,721	1	4
Stock Quotation Telegraph Company	....	....	427	......	....
Totals	46,539	365,162	486,474	176	642

NOTE. — Main and feeder tube or the solid system distribution boxes of the Edison Electric Illuminating Co. are not included in the above figures. Amount of tube laid during the year 1904 was 13,080 feet; of this, 3,441 feet is reckoned as conduit; there were 12 new distribution boxes installed.

Table showing the Underground Electrical Service of Boston.

	To 1904.	1904.	Jan. 31, 1905.
Feet of conduit	1,299,864	46,539	1,346,403
Feet of single duct	8,332,483	365,162	8,697,645
Feet of cable	10,316,358	486,474	10,802,832
Number of manholes	5,930	176	6,106
Number of service connections	11,955	642	12,597
Feet of solid tubing (Edison)	521,203	13,080	534,283
Distribution boxes (Edison)	470	12	482
Park boxes	140	5	145

NOTE. — Of the 13,080 feet of Edison tubing mentioned above, 3,441 feet is reckoned as conduit, but is not included in the 46,539 feet of conduit in table.

Table showing the Amount and Distribution of Boston's Electrical Power, January 31, 1902.

Companies.	Total rated Horse Power of Boilers.	Total rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of Stations.
Boston Elevated Railway Co.	26,770	48,500	51,775	318	4,602	118,040	8
Boston Electric Light Co.	......	......	......	......	......	......	......
* Edison Electric Illuminating Co.	15,654	29,000	420,635	8,288	3,859	18,159	9
Suburban Light and Power Co.	......	......	......	......	......	......	......
Charlestown Gas and Electric Light Co.	625	790	16,000	680	36	287	1
Brookline Gas Light Co.	1,800	3,100	30,000	600	35	285	1
Church Green Electric Light and Power Co.	770	685	7,250	68	74	724	5
† Isolated Plants	60,404	37,232	203,419	3,582	779	7,685	277
Block Plant Co.	273	417	4,900	......	18	63	1
Sudbury Building	200	200	800	19	17	87	1
Steam and Power Co.	150	125	2,600	260	29	135	2
Hecht Building Plant	300	200	2,400	240	31	100	1
Totals	106,946	120,249	739,779	14,055	9,480	145,565	306

* The figures shown against the Edison Electric Illuminating Company represent the capacity of the company, the Boston Electric Light Company and the Suburban Light and Power Company, which companies have been consolidated during the year.

† The capacity of generators for Isolated Plants in K. W., 19,454.

January 31, 1903.

Companies.	Total rated Horse Power of Boilers.	Total rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of Stations.
Boston Elevated Railway Co.	28,770	54,450	53,009	368	4,722	135,140	8
Edison Electric Illuminating Co.	16,726	32,130	478,858	8,251	5,853	19,865	10
Charlestown Gas and Electric Light Co.	......	......	......	......	26	216	......
Brookline Gas Light Co.	1,000	3,100	30,000	600	39	212	1
Church Green Electric Light and Power Co	770	685	7,250	68	74	724	5
* Isolated Plants	61,720	38,030	203,044	3,559	812	7,986	283
Block Plant Co.	273	417	5,250	......	26	143	1
Sudbury Building, Power and Illuminating Co	200	200	800	19	17	87	1
Steam and Power Co.	150	125	2,600	260	31	135	2
Hecht Building Plant	300	200	2,400	240	32	117	1
Totals	109,909	129,337	782,711	13,365	11,632	164,625	312

* The capacity of generators for Isolated Plants in K. W., 20,078.

January 31, 1904.

Companies.	Total rated Horse Power of Boilers.	Total rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of Stations.
Boston Elevated Railway Co.	28,770	54,450	41,482	393	4,797	136,640	8
Edison Electric Illuminating Co.	16,726	32,275	536,724	8,518	6,501	22,726	10
Charlestown Gas and Electric Light Co.	......	......	......	......	32	190	......
Brookline Gas Light Co	1,000	3,100	3,500	600	70	376	1
* Isolated Plants	60,095	37,649	197,976	3,849	841	8,081	274
Block Plant Co.	273	417	5,250	......	3	16	1
Sudbury Building	202	230	727	1	26	138	1
Steam and Power Co.	267	295	4,000	400	42	216	2
Hecht Building Plant	300	200	2,400	240	32	117	1
Totals	107,633	128,616	792,059	14,001	12,344	168,500	298

* The capacity of generators for Isolated Plants in K. W., 20,125.

January 31, 1905.

Companies.	Total rated Horse Power of Boilers.	Total rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of Stations.
Boston Elevated Railway Co.	28,770	54,450	48,785	449	4,899	144,920	8
Edison Electric Illuminating Co.	24,918	48,080	579,818	9,044	7,085	24,566	11
Charlestown Gas and Electric Light Co.	......	......	......	......	41	204	......
Brookline Gas Light Co.	1,000	3,100	30,000	600	72	412	1
Block Plant Electric Light Co.	273	417	5,250	......	3	16	1
Sudbury Building	202	230	727	1	26	150	1
Steam and Power Co.	267	295	4,000	400	41	214	2
Hecht Building Plant	300	200	2,400	240	31	217	1
* Isolated Plants	61,943	38,995	203,559	3,707	1,052	9,211	274
Totals	117,673	145,717	874,539	14,441	13,250	179,910	299

* The capacity of generators for Isolated Plants in K. W., 21,177.

INTERIOR DIVISION.

During the year ending January 31, 1905, such attention has been given old work as it was practicable to give without neglecting, or delaying, the inspection of new work. It has been necessary, however, to give the greater part of the energies of the division to the inspection of the last-mentioned work, as the provisions of chapter 268, Acts of 1898, which provides that a permit must be granted by the Commissioner of Wires before current can be legally turned on to wires that are to be used for electric lighting, heating, or power, plainly necessitate, in justice to both the party who is to be supplied with, and to the person or corporation who is to supply, the current, a prompt inspection of the work, and if found satisfactory the issuing of a permit to turn current on without unnecessary delay.

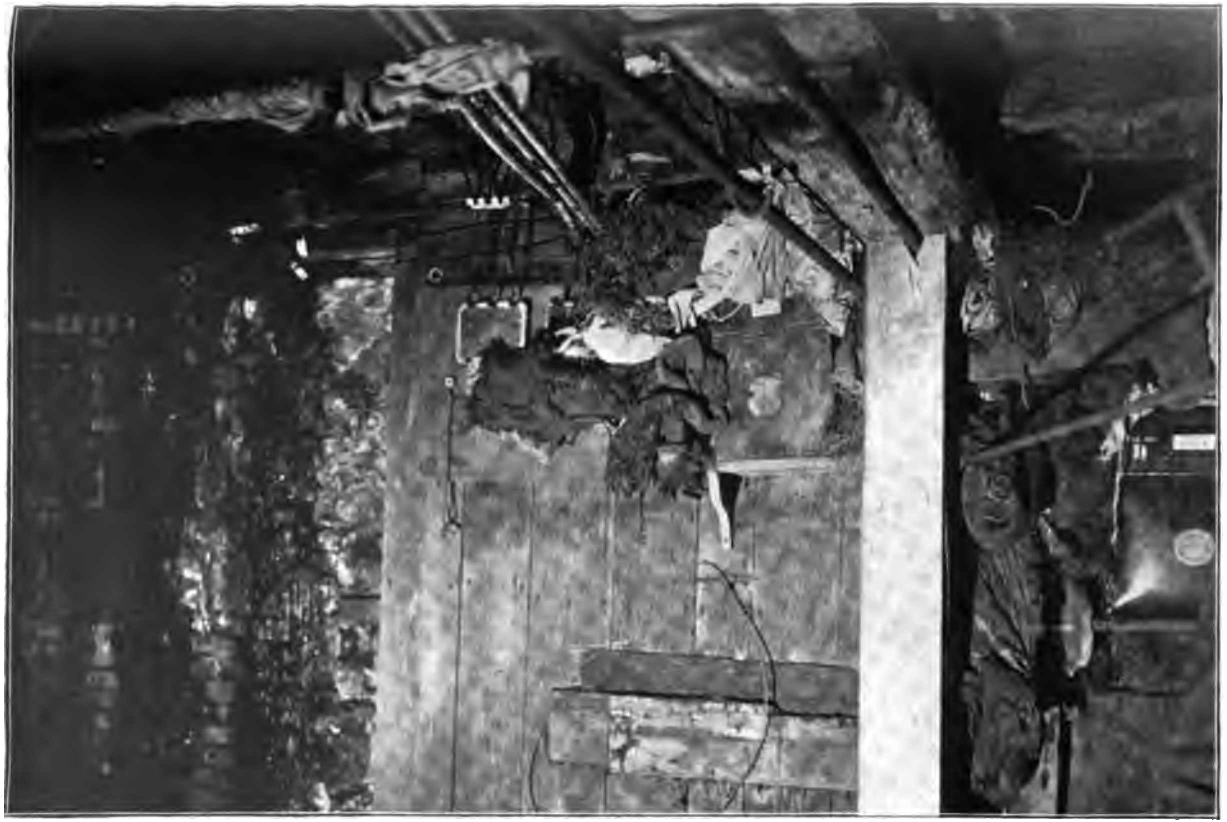
As has been noted in reports for previous years, it is unfortunate that old wiring cannot receive the attention which it rightfully demands; but with the present force of inspectors the pressure of new work is so great that the larger portion of the old wiring can receive but scant, if any, attention.

This does not mean, however, that theatres, halls, large stores, etc., have not received the same special care and attention that they have in past years. At the various theatres, inspections have been made weekly of temporary wiring used in connection with the attractions, and in many instances wiring and electrical apparatus has been found the use of which would endanger the theatre and the people in same. In such cases, the wiring or apparatus was condemned and its use not permitted until such changes had been made as would, in our judgment, eliminate the dangerous features of the installation. Frequent inspections have been made at large stores, at many of which changes in electrical equipment are constantly being made, and there has been a large amount of temporary wiring, both inside and outside of buildings, which has received the usual careful attention.

Chapter 450, of the Acts of 1904, approved June 9, to take effect September 1, 1904, which relates to the licensing, inspection, etc., of theatres and halls, has been carefully complied with in so far as its provisions relate to the duties of the Wire Department. Since September 1, inspections and tests have been made of the wiring at the various halls coming under the requirements of the law, and monthly inspections and tests have been made at each and every theatre of the permanent wiring throughout same; these, with the weekly inspections before mentioned, when in connection with the temporary wiring certain portions of the permanent wiring must necessarily be inspected, have given very satisfactory results. Defects are frequently found during the monthly inspection, but they are usually of a minor character, which are not permitted to exist but a short time after they are brought to the attention of the theatre people. In this connection would say that due credit should be given to the managements of the various theatres for the cheerful manner in which they have complied with our requests for changes in the electric installations of their theatres when, as a result of our inspections or tests, changes were deemed necessary in the interests of safety.

The so-called "moving-picture machine," which has been a prolific source of fires in halls and theatres in various sections of the country, will undoubtedly continue to be a menace to a greater or less extent, according to the conditions and manner under which they are installed and the efficiency of the operator who has the handling of the apparatus. The authority of this department regarding such machines is limited to the construction and method of installation, from an electrical standpoint, of apparatus. Oftentimes a fire is started by one of these machines as a result of the inefficiency of the operator, and fire is spread on account of existing conditions in the vicinity of where the machine is installed. As at present generally installed they are a menace to safety, and such legislation should be enacted as will either prevent their use, or will place sufficient authority with some one to permit the enforcing of such requirements as will tend to give reasonable safety when device is used.

During the past year the electric lighting system of the East Boston Tunnel and of the stations connected therewith has been installed. Normally, tunnel sections are lighted by current from the system of the Boston Elevated Railway Company at a potential of about 550 volts, lamps being wired five (5) in series. Stations at Court street, Devonshire street, and at Atlantic avenue are also lighted by current from the same system, with the exception that at each station a certain number of arc and incandescent lamps are at all times fed from the system of the Edison Electric Illuminating Company of Boston, which company has two 3-wire 110–220 volt D. C. services (each 100,000 c.m. capacity), one entering



CONDITION FOUND AT AN UNDERGROUND SERVICE LOCATION IN BASEMENT OF A BUILDING.

Plate No. 7.

tunnel from Court street, and the other entering at Atlantic-avenue station. A 2,300 volt A. C. service of the Edison Electric Illuminating Compay of Boston also enters Atlantic-avenue station, where it feeds one 50 kw. oil-cooled transformer made by the Fort Wayne Electric Works of Indiana, transformer belonging to the Boston Elevated Railway Company. This installation is for the purpose of supplying current for lights normally supplied from the system of the Boston Elevated Railway Company, in case, from any cause whatever, the supply from said system is cut off. One side of the secondary system from transformer is grounded to car rail of system, the other running to switchboard room at the Devonshire-street station, at which point it is connected to an automatic switch so designed that in case current supplied is discontinued from system of the Boston Elevated Railway Company the switch immediately throws over and connects lights normally fed from their system to the 575 volt A. C. system from transformer located at the Atlantic-avenue station and fed from the system of the Edison Electric Illuminating Company of Boston.

There are three (3) main feeders terminating in switchboard room above referred to, where is located the central point of control. These feeders are lead-covered cables, one coming from the Central Power Station of the Boston Elevated Railway Company, Albany street, one from their Lincoln Power Station, Lincoln Wharf, and one from the transformer located at the Atlantic-avenue station of tunnel. From the central point of control are run two (2) distribution feeders consisting of lead-covered cables run underground in vitrified clay conduit, one running down north side of tunnel, and one down south side of tunnel, feeding distribution boxes on their respective sides of the tunnel. All circuit wiring throughout the tunnel and stations is done in iron conduit with rubber-covered wire. The smallest size used is 16 B. & S. Gage wire. Switches are of the knife and snap types, and fuses are of the cartridge or enclosed fuse type. In the tunnel sections there are three (3) rows of lamps, one on each side, and one in the centre of the tunnel, with the lights of each row spaced about thirty-six feet apart, and the rows so staggered in relation to each other that there is a 16 candle-power lamp about every twelve feet of the tunnel.

The Court-street station contains five (5) arc-lamps supplied from Boston Elevated Railway Company system, three (3) arc-lamps supplied from the Edison Electric Illuminating Company of Boston system, one (1) incandescent lamp, 55 candle-power, supplied from last-named company's system, fifteeen (15) incandescent lamps, 16 candle-power, supplied from Boston Elevated Railway Company system, fifteen (15) incandescent lamps, 32 candle-power, fifteen (15) incandescent lamps, 55 candle-power, and five (5) Simplex Electric Heating Sets, also supplied from last-named company's system.

The Devonshire-street station contains ten (10) arc-lamps supplied from the Boston Elevated Railway Company system, four (4) arc-lamps and seven (7) incandescents, 55 candle-power, supplied from the Edison Electric Illuminating Company of Boston system, ten (10) incandescents, 55 candle-power, ten (10) incandescents, 16 candle-power, and four (4) Simplex Electric Heating Sets, supplied from the Boston Elevated Railway Company system.

The Atlantic-avenue station has not been completed as yet. In that portion of the same in tunnel there are ten (10) arc-lamps feeding from system of the Boston Elevated Railway Company, and four (4) arc-lamps feeding from system of the Edison Electric Illuminating Company of Boston.

In the tunnel sections there are six hundred (600) incandescent lamps feeding from twenty-one (21) distribution boxes for local control. From each of nineteen (19) of these boxes are controlled six (6) circuits of lamps; from one (1) box is controlled five (5) circuits of lamps; from the other box is controlled one (1) circuit of lamps.

All reports of fires and accidents as due, or supposed to be due, to electrical causes have been given prompt attention, careful investigations made and records of same kept. Fires for which two or more alarms have been given have been responded to by members of the department.

It is a pleasure to report that there has been no fire during the past year that was caused by wiring approved by this division.

During the past year the number of fires in the interior of buildings has been twenty-three (23) as compared with thirty-two (32) fires for the year previous. Of this number fifteen (15) of the fires were of minor character and entailed no insurance loss. As a result of the other eight (8), among which is included the fire which occured October 25, at the Lotus-place car barn of the Boston Elevated Railway Company, which destroyed barn and contents, and which, while it could not be absolutely so determined, was probably due to electrical causes, the insurance loss was very heavy, it being one hundred seventy-four thousand one hundred eight dollars and seventeen cents ($174,108.17). Of this amount one hundred eleven thousand three hundred thirty-four dollars and forty-one cents ($111,334.41) was loss on car barn fire above mentioned; fifty-eight thousand six hundred seventy-six dollars and two cents ($58,676.02) was loss caused by a fire December 17, at building numbered 637 to 643 Atlantic avenue, which was attributed to an electric motor, accidentally left running all night, and the bearings of which ran dry for lack of oil. Two fires caused by electric flat irons carelessly left in circuit when occupants went home for the night, caused insurance losses of twelve hundred forty-seven dollars and twenty cents ($1,247.20) and nine hundred sixty-seven dollars and seventy-two cents ($967.72), or a total loss for the two fires of twenty-two hundred fourteen dollars and ninety-two cents ($2,214.92). Two fires due to defects in electric elevator installations caused insurance losses of nine hundred six dollars and eighty-two cents ($906.82) and one hundred eighty-five dollars ($185), or a total loss for the two fires of ten hundred ninety-one dollars and eighty-two cents ($1,091.82). One fire caused by sparks from the brushes of an electric motor flying into inflammable material caused an insurance loss of two hundred twenty-five dollars ($225), and one fire caused by a short circuit of electric mains in an elevator well caused a loss of five hundred sixty-six dollars ($566).

There were three (3) cases during the year where primary current of high potential entered buildings over the wiring of same, in each case doing some damage to the wiring and fixtures in buildings. In one of these cases there was a leak between primary and secondary coils of transformer supplying current, and in the other two cases trouble was due to a swinging cross between primary and secondary wires on pole in street.

There were thirteen (13) accidents resulting in the deaths of three (3) persons and injuries of fifteen (15) others. Of the fatal accidents, one occurred to a freight handler in the employ of the Boston & Maine Railroad, who was killed as a result of coming in contact with a high potential wire which had become crossed with a telephone wire and had burned off and fell to ground; one occurred to an employee of the Edison Electric Illuminating Company, who, while on a pole, where he had been making temporary repairs or corrections on certain wires, received a shock by coming in contact with a high potential wire and fell to street; the third case was that of an employee of the Edison Electric Illuminating Company, who had been working on wires beneath the easterly end of the bridge between South Boston Point and

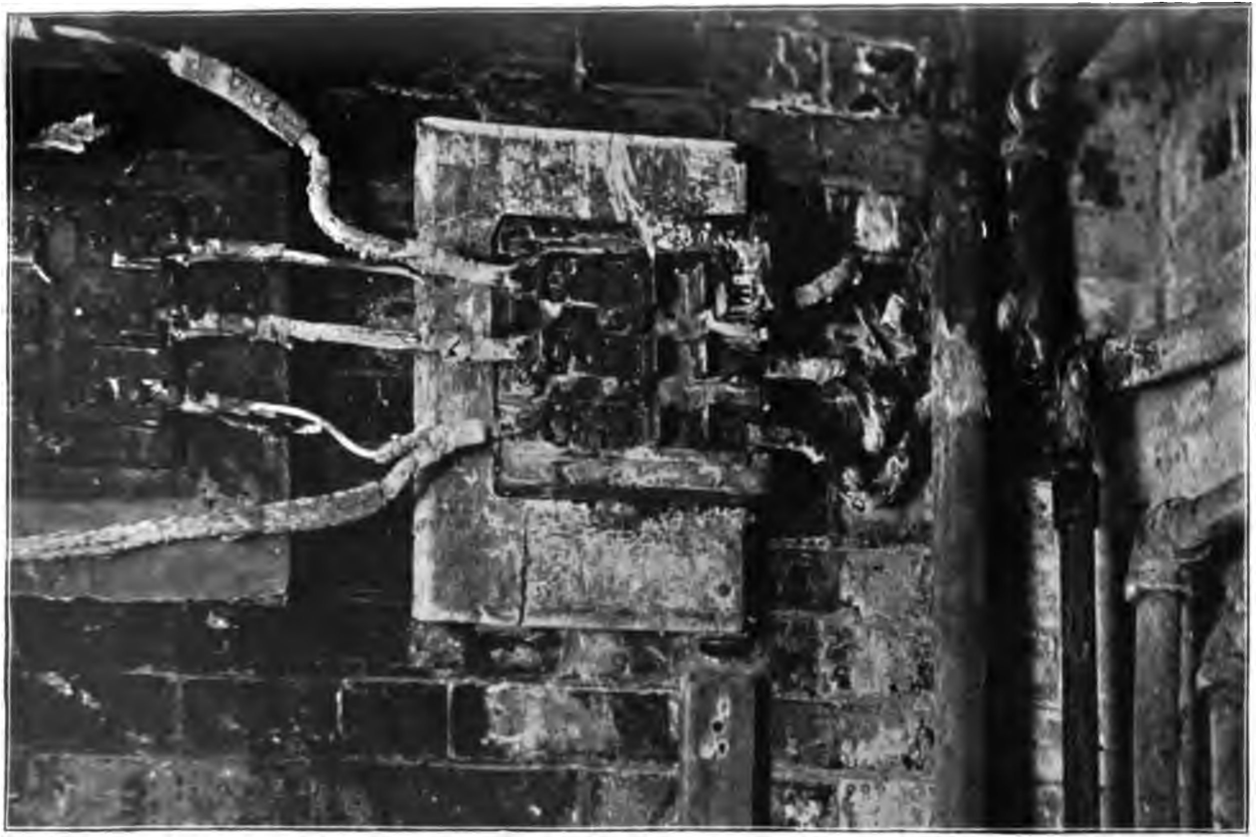
Castle Island, and who was found, by a fellow workman, who had left him but a few minutes before for the purpose of getting a boat, lying partly in the water and partly on the rocks beneath the bridge. Investigation failed to show absolutely whether his fall was due to a shock which he received while at work on wires, or to other causes. Of the victims of the remaining ten (10) accidents, fifteen (15) in number, six (6) were employees of the company on whose system accidents occurred; two (2) were in the employ of wiring contractors, and were at work on wires of the company on whose system accidents occurred; one was an employee of the New England Telephone and Telegraph Company of Massachusetts, who, while on a pole, received a slight shock of electricity from a span wire of the street railway company; one was a laborer, who, while working in East Boston tunnel, made contact with trolley wire; one was a passer-by, injured by a falling pole, and four (4) were injured as a result of shocks of electricity due to steel guy-wire, for derrick which they were at work on, coming in contact with a trolley wire.

The laboratory of the department has been of great service during the past year, many matters having come up upon which it would have been impossible to give a proper decision without the tests which the laboratory affords the necessary facilities for making. Electrical matters of national importance have been taken up in conjunction with other electrical inspection departments, and in connection with such matters tests have been made at the department laboratory, at the power stations of the Boston Elevated Railway Company and the Edison Electric Illuminating Company of Boston, by the courtesy of said companies, and at the laboratories of other inspection departments interested.

The following is a complete summary of the work of the Interior Division for the year ending January 31, 1905:

Notices of new work received	7,983
Buildings in which wiring was completely examined	524
Incandescent lights examined	611,778
Arc-lights examined	5,738
Motors examined	2,966
Total horse-power of motors examined	11,790.5
Services examined	571
Inspections made	19,224
Defects reported	1,073
Defects corrected	673

Other defects are in process of correction.



BURN-OUT OF ELECTRIC SERVICE CABLE IN BASEMENT OF A BUILDING.

Plate No. 8.

During the year there have been seventy-nine (79) fires or accidents to property, the origin of which was traced to electricity.

Fires in interior of buildings	23
Fires on outside walls of buildings	5
Fires at bridges	3
Fires on poles	5
Explosions in manholes	3
Miscellaneous (exterior)	31
Miscellaneous (interior)	9
	79

The following is a record of isolated plants in operation in this city:

Number of plants,	274.		
" " boilers,	603,	total horse-power,	61,943
" " engines,	402,	" "	38,995
" " generators,	487,	" k. w. capacity,	21,177½
" " motors,	1,052,	" horse-power,	9,211¾
" " incandescents,	203,559.		
" " arcs,	3,707.		

During the year ending January 31, 1905, there were fourteen (14) old plants inspected, the equipment of which was as follows:

Number of boilers,	35,	total horse-power,	3,893
" " engines,	29,	" "	2,344
" " generators,	32,	" k. w. capacity,	1,533
" " motors,	57,	" horse-power,	298½
" " incandescents,	18,757.		
" " arcs,	235.		

The record of plants the operation of which was discontinued during the year is as follows:

Number of plants,	21.		
" " boilers,	25,	total horse-power,	2,475
" " engines,	21,	" "	1,192
" " generators,	25,	" k. w. capacity,	618
" " motors,	34,	" horse-power,	188
" " incandescents,	7,573.		
" " arcs,	157.		

The record of new plants installed and inspected is as follows:

Number of plants,	21.		
" " boilers,	38,	total horse-power,	4,323
" " engines,	30,	" "	2,538
" " generators,	36,	" k. w. capacity,	1,670½
" " motors,	245,	" horse-power,	1,318½
" " incandescents,	13,156.		
" " arcs,	15.		

Fires and Miscellaneous Troubles Due to Electricity.

February 5, 10.25 A.M., Box 16, 109 State street; basement; no insurance loss.

February 10, 10.27 A.M., Box 121, 168 A street, South Boston; burn-out in service cable of the Edison Electric Illuminating Company; no insurance loss.

February 23, 8.50 P.M., 176 Tremont street; failure of feeding mechanism of an arc-lamp caused overheating of resistance coils; no damage except to lamp; members of Fire Department called on a still alarm.

February 24, 11.33 A.M., Box 43, 494 Washington street; fire in elevator well; insurance loss, $566.

March 8, Washington, near Acton street; slight explosion in manhole of the Boston Elevated Railway Company; cover of manhole raised and laid to one side; burn-out occurred in cables of same company in their manhole on Washington street, near Savoy street.

March 9, 1.40 A.M., 535 Beacon street; slight fire, hall, first floor; Fire Department called on a still alarm; no insurance loss.

March 14, about 6.41 P.M., 413 Washington street; slight fire on third floor; Fire Department called on a still alarm; no insurance loss.

March 15, 6.43 P.M., Box 151; tree fire corner Broadway and H street; no damage except to tree, a limb of which was burned off.

March 30, 6.30 A.M., 45–7 North street and 34–44 Blackstone street; slight fire first floor; extinguished by occupants; no insurance loss.

April 1, about 6 A.M., gas explosions in two manholes belonging to the Edison Electric Illuminating Company and located in Wareham street; one opposite building numbered 43, the other opposite building numbered 73, of said street.

April 5, about 9.21 A.M., 364 Washington street; slight fire in elevator machinery room in basement; Fire Department called on still alarm.

April 9, about 5.30 A.M., Warren Bridge; slight fire where a trolley wire pole was bolted to one of the bridge timbers; Fire Department was called on a still alarm.

April 9, about 6 A.M., corner Washington and Eustis streets; slight fire in a cut-out box belonging to, and on one of the trolley wires supporting poles of, the Boston Elevated Railway Company.

April 10, about 12.55 A.M., corner of Front and Jenner streets, Charlestown; slight fire at point where a temporary scaffolding on outside of building was in contact with a high potential wire; Fire Department called on a still alarm.

April 10, about 7.20 P.M., corner Cedar and Juniper streets; slight tree fire.

May 10, evening, opposite 23 Walnut avenue; slight tree fire; Fire Department called on a still alarm.

May 14, 5.52 P.M., Box 42, 131–2 Tremont street; slight fire in basement; insurance loss, $225.

May 15, 7.04 P.M., 84–8 Leverett street; armature of one-sixth horse-power motor burned out; no other damage; Fire Department called on still alarm; no insurance loss.

May 16, about 11.48 P.M., Public Garden, near subway entrance; slight tree fire.

May 17, about 9.40 P.M., pole at southeast corner of Tremont and Whittier streets; burn-out of cables leaving underground terminal pipe at this pole.

May 17, about 10.15 P.M., Box 532; Adelaide street, Jamaica Plain; tree fire.

June 3, about 7.45 P.M., Blackstone square; slight tree fire.

June 7, about 5.20 A.M., Dudley and Magnolia streets; wires which were in contact with limb of tree burnt off and fell to sidewalk.

June 12, about 2.45 P.M., 34–6 Green street; slight fire in basement; no insurance loss.

June 13, about 4.30 P.M., 3748 Washington street, also numbered 19 Hyde Park avenue; primary current entered over secondary wiring of building, causing some damage to lighting fixtures.

June 29, about 8 P.M., corner K and East Sixth streets; slight tree fire.

June 29, about 7 P.M., opposite 561 Massachusetts avenue; slight tree fire.

July 2, about 9 P.M., Broadway, between G and H streets; slight tree fire.

July 5, between 10 and 12 P.M., corner Winthrop and Greenville streets; slight pole fire.

July 5, about 10 P.M., opposite No. 2447 Washington street; tree fire; wire with which limb of tree was in contact burned off and fell to street.

July 5, 5.05 P.M., Box 639, 225 Havre street, East Boston; lightning struck a transformer on wall of building; transformer burned out; no other damage; no insurance loss.

July 5, evening, opposite No. 76 Richmond street; tree fire; wire which was in contact with tree burned off and fell to sidewalk.

July 5, Dorchester avenue, near Richmond street; slight tree fire.

July 16, about 9.15 P.M., opposite No. 275 Shawmut avenue; slight tree fire.

July 22, about 9.30 P.M., No. 1 Bowdoin square; short circuit in a lamp socket, and insulation of wire feeding same, ignited and burned for an inch or two; no insurance loss.

August 6, about 3.55 A.M.; slight fire on pole opposite No. 58 Dearborn street.

August 6, about 1.38 A.M., opposite No. 15 Walnut street, Neponset; tree fire; wire that was in contact with limb of tree burned off and fell to ground.

August 6, about 4.45 A.M., Summer street; bridge electrically charged.

August 6, 1.15 P.M.; automatic alarm from box 238–8, 86 Franklin street; slight fire in closet first floor; no insurance loss.

August 7, 6.21 P.M., Box 42, Nos. 1, 2, 3 and 4 Winter place; burn-out of service cables entering basement; no insurance loss.

August 11, Beach-street station of the Boston Elevated Railway Company; fire at ceiling of Exit stairway; no insurance loss.

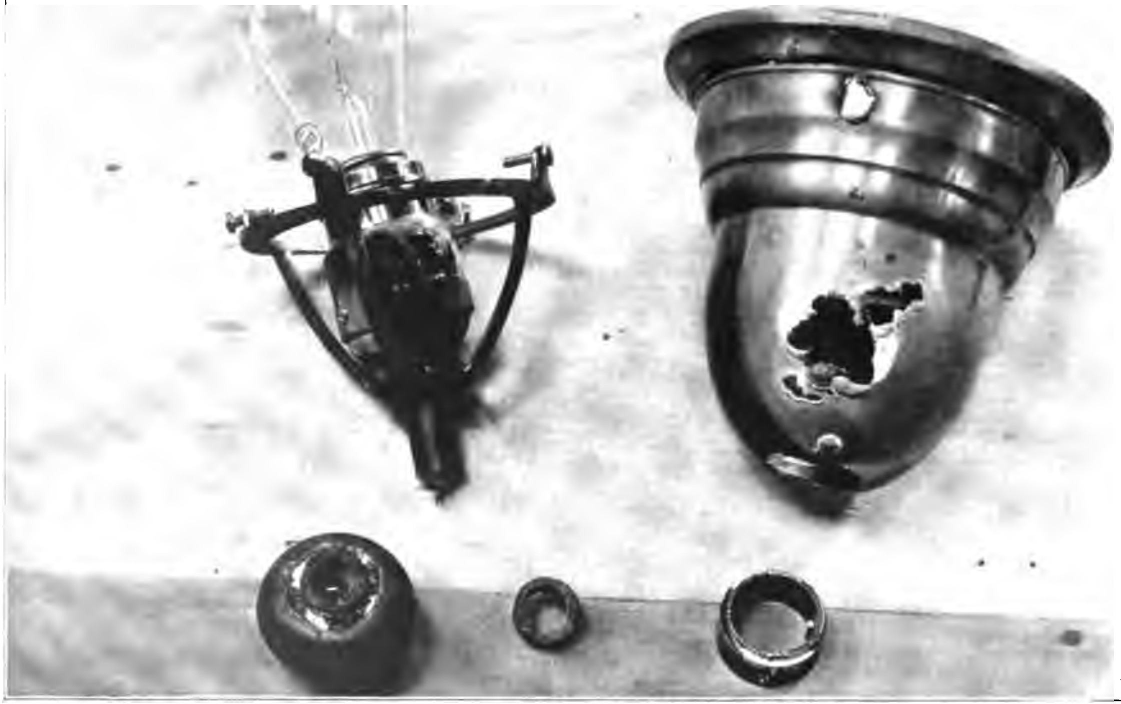
August 11, between 5 and 6 A.M., Warren street, near Elm Hill avenue; slight tree fire.

August 15, Federal-street bridge; fire in cable-house.

August 20, 11.52 P.M., 17–19 Meridian street; arc-lamp failed to operate properly, coils became overheated and smoked badly, fuse operated; no fire; fire department called on a still alarm.

August 20, K and Ninth streets, South Boston; slight tree fire.

August 20, Blue Hill avenue and Intervale street; slight tree fire.



SOME OF THE RESULTS OF HIGH POTENTIAL CURRENT ENTERING A BUILDING OVER THE LIGHTING SYSTEM OF SAME.

Plate No. 9.

August 20, Prescott street, near Bennington street, East Boston; limb of tree broke wires.

August 21, East Newton street; wires swinging together and arcing.

August 22, 7.30 A.M., corner Dent and Ivory street, West Roxbury; slight tree fire; wire which had been in contact with tree burned off and fell to street.

August 28, 12.50 A.M., Box 14, Battery street station of the Boston Elevated Railway Company; fire in ticket office; no insurance loss.

September 4, 3.30 A.M., 1325 Tremont street; slight fire on outside of building; insurance loss, $53.

September 9, about 10 P.M., Second street, near H street, South Boston; arcing wires between poles and at underground terminal poles.

September 12, about 6.30 P.M., Zeigler street; during a severe storm a tree fell upon a number of high potential wires attached to poles on this street, necessitating the cutting of current out of said wires until tree was cleared away.

September 15, 2.38 P.M., Box 19, No. 21 Washington street; fire in elevator machinery room, fifth floor; insurance loss, $185.

September 15 and 16, 3748 Washington street, also numbered 19 Hyde Park avenue; primary current entered over secondary wiring of building, doing some damage to wiring and fixtures. When current entered on the 16th, a wireman who was repairing damage done the day before received a severe shock and slight burns to finger when in the act of turning key of a lamp socket.

October 6, about 3 A.M., Beacon street, near Keswick street; slight tree fire.

October 11, about 9.07 A.M., at Beach street station of Elevated Railway System; short circuit of third rail; damage slight.

October 13, about 2 A.M., opposite No. 7 Worcester square; slight tree fire.

October 21, 1.58 P.M., Box 55, No. 225 Tremont street; burn-out in 220-volt three-wire service entering from underground; no insurance loss.

October 21, 19–21 Commercial street; workmen engaged in lining an elevator well with sheet metal, nailed metal to a moulding containing electric wires; points of nails penetrated insulation and came in contact with conductor; metal sheathting becoming charged thereby.

October 21, about 2.48 A.M., 159 Tremont street; fire on first floor; insurance loss, $1,247.20.

October 21, about 6.45 P.M., Albany and East Newton streets; arcing between wires.

October 21, evening, opposite No. 135 Blue Hill avenue; tree fire.

October 21, 6.04 A.M., Box 53, Hayward place; portion of street caved into excavation being made for a cellar, and a short circuit of electric lighting mains in street resulting.

October 26, 7.50 P.M., Box 135, near 606 Eighth street; tree fire.

October 25, 2.08 A.M., three alarms from Box 516, Lotus place; car barn Boston Elevated Railway Company; insurance loss, $111,334.41.

Note. — The exact cause of this fire could not be determined, but fire is thought to have been due to electrical causes.

November 1, 9.30 A.M., 323–9 A street and 311–19 Summer street; slight fire in elevator machinery room, basement; Fire Department called by automatic alarm; no insurance loss.

November 30, 11.03 P.M., Box 51, 500 Atlantic avenue; fire third floor; insurance loss, $906.82.

December 1, 10.25 P.M., 140 Boylston street; fire on second floor; Fire Department called on still alarm; insurance loss, $967.72.

December 9, 11.20 A.M., Box 52, 87 Summer street; slight fire in basement; no insurance loss.

December 17, 3.53 A.M., Box 48, four alarms; 637–43 Atlantic avenue, fire originated on fourth floor; insurance loss, $58,676.02.

December 27, 9.30 A.M., 68 Endicott street; slight fire where 500 volt wires passed back of a sign on outside of building.

January 6, about 10.30 P.M., 250 Boylston street; burnout in a service cable which had been injured by a severe fire in vicinity of where cable entered and for which fire alarm from Box 95 was given at 9.28 same evening.

January 7, about 6 A.M., Blue Hill avenue and Dewey street, also opposite 458 Blue Hill avenue; arcing between wires which swung together during heavy wind.

January 16, about 10 P.M., 619 Washington street; smoke from a garment left in contact with an incandescent lamp; no fire.

January 18, about 10 A.M., 43 West street; arcing between two ends of a broken wire entering a cut-out box on outside wall of building; Fire Deparment called on a still alarm.

January 25, about 3.35 P.M., Federal-street bridge; slight fire on under side of bridge.

ACCIDENTS TO PERSONS, DUE TO ELECTRICITY.

February 4, about 2 P.M., Thomas Scanlan, an employee of the Boston Elevated Railway Company, severely burned while installing a new switch in switchbox on pole.

February 15, about 3.05 P.M., Vincent M. Duggan, an employee of the Boston Elevated Railway Company, was badly burned about the face, hands, and his helper Frank McDonald was very slightly burned also, while engaged in repairs on a trolley hanger at the Sullivan square terminal.

February 18, about 11.30 A.M., C. L. Peterson, an employee of the Boston Elevated Railway Company, had his right hand burned and eyebrows, hair, and side of face scorched while at work in Central Power Station of above company.

March 11, about 8 A.M., while a derrick was being erected at 326 Boylston street, its guy-wires became charged with a current of electricity, one of them having come in contact with a trolley wire of the street railway service. Men in the employ of the L. P. Soule & Son, contractors, were at work on the guys at the time. Edward Romer received a severe shock and was knocked down. Michael Kane received a severe shock and had his right hand badly burned, and James McDonald and Peter Frank received slight shocks. Roofs of buildings numbered 115 to 121 Providence street were damaged in several places at points where one of the guy-wires passed over and was in contact with same. Stand-pipe attached to this building and belonging to the New England Telephone and Telegraph Company was damaged, as was also cable contained in same.

March 22, about 11.30 A.M., James Ellsworth, an employee of the Ley Contracting Company, doing line work for the Edison Electric Illuminating Company at the time, received a severe shock, and bad burns on both hands.

May 18, between 5.15 and 5.30 P.M., Daniel Finn, a freight handler of the Boston & Maine Railroad, received a shock and was killed by current from a high potential wire with which he came in contact in the yard of the Boston & Maine Railroad.

June 13, about 8 A. M., Dorchester street, corner Fifth street, South Boston, pole fell causing injuries to Margaret F. Hassan, a passer-by, and to John D. Monroe, who was on the pole at the time working for the Ley Contracting Company, which was about to remove pole for the Edison Electric Illuminating Company.

June 25, T. Russell, an employee of the Boston Elevated Railway Company, received slight burns to a hand, leg, and arm while at work on a feed wire of above company.

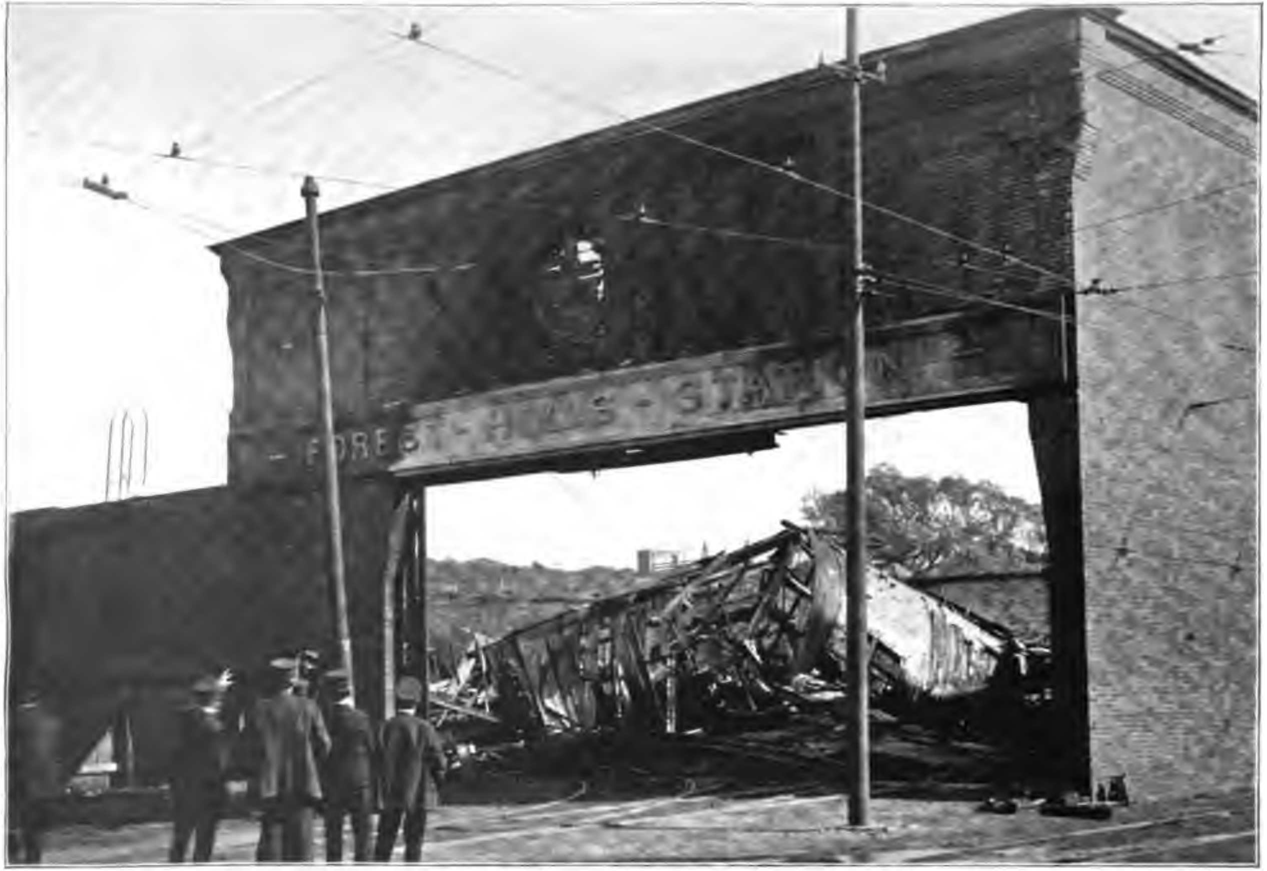
July 12, about 3.50 P.M., John O'Brien, an employee of the New England Telephone and Telegraph Company, received a slight shock of electricity while he was at work on a pole.

July 26, J. H. Johnston, an employee of the Edison Electric Illuminating Company, while at work on wires of that company under the easterly end of Castle Island bridge, fell and was killed. It was not absolutely determined whether his fall was, or was not, due to his receiving a shock from wires upon which he was at work at the time.

October 12, about 6.10 P.M., George McIntire, an employee of the Edison Electric Illuminating Company, while at work on pole near the corner of Dudley street and Blue Hill avenue, received an electrical shock, fell to street, and was killed.

October 26, about 4 P.M., John Tedo, a laborer employed by the Boston Transit Commission, while on a ladder at work in East Boston Tunnel, came in contact with trolley wire and was thrown to track. Tedo received lacerated wounds on the forehead and elbow, an abrasion of the knee, and slight burns to fingers of right hand.

December 2, A. McDonald, an employee of the Boston Elevated Railway, while at work on their Washington street elevated structure, received slight burns on one hand and injury to one eye as a result of a short circuit.



RUINS OF THE LOTUS PLACE CAR BARN OF THE B. E. RY. CO., DESTROYED BY FIRE OCTOBER 25, 1904.

Plate No. 10.

WORK OF INTERIOR DIVISION.

Inspection of Interior Wiring of Buildings, showing Work Performed for Five Years.

	1900.	1901.	1902.	1903.	1904.
Notices of new work received	5,850	9,107	10,272	8,590	7,983
Number of buildings, wiring completely examined	570	692	496	487	524
Incandescent lights examined	316,074	422,182	394,234	330,050	611,778
Arc-lights examined	5,697	12,882	10,882	2,716	5,738
Motors examined	1,922	3,275	3,006	2,465	2,966
Total H.P. of motors examined	11,150	16,444	12,531	11,151	11,790
Defects reported	2,274	2,349	1,810	1,274	1,073
Defects corrected	1,622	1,928	1,165	938	673
Services examined	1,176	1,654	1,174	819	571
Inspections made	12,609	23,111	23,962	19,635	19,224
Isolated plants in this city	271	281	283	274	274
Isolated plants inspected	197	34	24	32	14

Number and Classification of Fires, etc., due to Electrical Causes.

	1900.	1901.	1902.	1903.	1904.
Fires on outside of buildings	4	6	3	2	5
Fires in the interior of buildings	29	22	18	32	23
Fires on roofs of buildings	1	2	....	....	....
Fire on poles	7	10	3	2	5
Bridge fires	3	1	1	3	3
Burn-outs	6	9	....	....	....
Deaths	4	6	2	....	3
Injuries	4	21	13	7	15
Manhole explosions	1	5	5	1	3
Miscellaneous	3	14	12	12	40
Fires at stand-pipes for distribution	1	....	....	....	....
Fires in underground services	1	....	....	....	....

DESCRIPTION OF PHOTOGRAPHS.

Plate No. 1 is a reproduction of a photograph showing the southwest corner of Broadway and Dorchester street, taken before the poles and wires were removed from the streets.

Plate No. 2 is a reproduction of a photograph taken from the same point as No. 1 after all poles and wires were removed.

Plate No. 3 is a reproduction of a photograph showing a portion of Broadway, South Boston, near the corner of F street, taken before the poles and wires were removed from the street.

Plate No. 4 is a reproduction of a photograph taken from the same point as No. 3 after all poles and wires were removed.

Plate No. 5 is a reproduction of a photograph showing Dorchester street, South Boston, looking north from Andrew square, taken before the poles and wires were removed.

Plate No. 6 is a reproduction of a photograph taken from the same point as No. 5 after all poles and wires were removed. The view at this point has been very much changed since photograph No. 5 was taken, owing to the widening of Dorchester street, which necessitated changing buildings, etc., in the vicinity.

Plate No. 7 is a reproduction of a photograph showing condition discovered by one of our inspectors, in a basement, at point where an underground electric service entered from street.

Plate No. 8 is a reproduction of a photograph showing burn-out in electric service cable at a point where a pipe had been installed in front of, and in contact with, cable.

Plate No. 9 is a reproduction of a photograph showing some of the results of high potential current entering a building over the low potential lighting system of same.

Plate No. 10 is a reproduction of a photograph of ruins of the Lotus Place Car Barn of Boston Elevated Railway Company, destroyed by fire, October 25, 1904.

LIST OF WIRE DEPARTMENT EMPLOYEES JANUARY 31, 1905.

No.	Occupation.	Salary per annum.
1	Commissioner	$5,000 00
1	Chief Inspector	2,600 00
1	Chief Inspector	2,000 00
1	Chief Clerk	1,500 00
1	Draughtsman	1,400 00
1	Engineer	1,400 00
5	Inspectors	1,400 00
2	Inspectors	1,300 00
7	Inspectors	1,100 00
3	Deputy Inspectors	1,100 00
4	Deputy Inspectors	1,000 00
1	Assistant Chief Clerk	1,000 00
1	Clerk	1,000 00
1	Lineman	1,000 00
6	Deputy Inspectors	900 00
1	Lineman	819 00
2	Linemen	800 00
1	Telephone Operator	500 00
1	Assistant Deputy Inspector	500 00
41		

STATEMENT OF DEPARTMENT APPROPRIATION AND EXPENDITURES FROM FEBRUARY 1, 1904, TO JANUARY 31, 1905, INCLUSIVE.

Appropriation	$59,000 00
Expenditures:	
Office, including salary of Commissioner	$10,217 80
Interior Division	20,440 63
Exterior Division	25,916 94
Telephones	499 79
Photography	304 37
Laboratory	17 02
Total amount of expenditures	$57,396 55
Balance unexpended	1,603 45
	$59,000 00

LIST OF PROPERTY OF THE WIRE DEPARTMENT.

1 High Potential Testing Apparatus.
1 Standard Resistance Coil with Wheatstone Bridge.
1 Transformer.
1 Test Board, capacity 220 volts and 300 amperes.
1 Auxiliary Test Board, capacity 220 volts and 150 amperes.
1 Auxiliary Test Board, capacity 220 volts and 75 amperes.
1 300-volt Weston Direct Reading Voltmeter, No. 3,317.
1 15-volt Weston Direct Reading Voltmeter, No. 4,747.
1 150-ampere Weston Direct Reading Ammeter, No. 926.
1 1,500-volt Weston Direct Reading Voltmeter, No. 3,438.
1 1,500-mil-ampere Weston Direct Reading Mil-Ammeter, No. 2,433.
1 300-volt Weston Direct Reading Voltmeter, No. 6,020.
1 500-ampere Weston Direct Reading Ammeter, No. 2,428.
1 300-volt Weston Portable Voltmeter, No. 15,459.
1 300-volt Weston Portable Voltmeter, No. 15,455.
1 300-volt Weston Portable Voltmeter, No. 15,456.
1 Electrostatic Voltmeter, No. 70,647.
1 15-ampere I. C. Ammeter, No. 21,507.
1 200-ampere T. & H. Portable Ammeter, No. 29,421.
1 300-volt Standard Portable Alternating and Direct Current Voltmeter, No. 1,044.
1 Reflecting Galvanometer, Condenser, Telescope, Scales, etc.
1 Bichloride of Silver Battery, 150-cell.
4 Bichloride of Silver Batteries, each 60-cell.
1 Queen Testing Set, No. 389.
1 50-ampere Weston Direct Reading Ammeter, No. 2,381.
1 Set Standard Resistance Coils.
1 Generator, 50,000 ohms.
1 Discharge Key.
1 Reversing Key.
1 Lamp-stand and Scale.
1 Shunt Coil.
1 Set Double Connector Posts.
2 Horses.
2 Express Wagons.
2 Business Wagons.
1 Sleigh.
3 Sets of Harness.
2 Robes.

6 Blankets.
1 Goddard Buggy.
1 Camera complete.
Miscellaneous tools used in connection with overhead construction.
Draughting Instruments.

HARVARD UNIVERSITY
DEPARTMENT OF

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ANNUAL REPORT

OF THE

WIRE DEPARTMENT

FOR THE

YEAR 1905

BOSTON
MUNICIPAL PRINTING OFFICE
1906

ANNUAL REPORT

OF THE

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FOR THE

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MUNICIPAL PRINTING OFFICE
1906

1 Dec. 1910
DEPARTMENT OF ARCHITECTURE,
HARVARD UNIVERSITY.
Gift of
The Department

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OFFICE OF THE COMMISSIONER OF WIRES,
11 WAREHAM STREET, BOSTON, February 1, 1906.

HON. JOHN F. FITZGERALD,
Mayor of the City of Boston :

SIR, — In compliance with chapter 3, section 24, Revised Ordinances of 1898, I herewith submit the annual report of the Wire Department, showing the appropriation, expenditure and work performed from February 1, 1905, to February 1, 1906.

The work of clearing the streets of poles and wires which were included in the 1905 district has been delayed on account of conditions that exist.

The inspections of theatres and public halls, called for under chapter 450, Acts of 1904, have been made.

The inspection of isolated plants and old wiring has received such attention as it could with the force at command.

The department was placed under civil service July 1, 1905.

During the year, the rules and requirements for the installation and use of electricity in this city have been brought to date, and an edition of same will be published and placed before the public, to be called "Edition 1906."

Circulars have been sent to all interested parties relative to the requirements of this department in regard to the matter of ground wire connections, etc., also, the maximum number of sockets that would be approved for branch circuits on outside signwork and for interior wiring purposes.

In connection with chapter 450, Acts of 1904, same referring to the licensing and inspection of theatres and public halls, would state that the number of halls was much greater than during previous years, and under strict interpretation of the law the number to be inspected is liable to be further increased.

Taking this condition into consideration, with the fact that isolated plants and old wiring cannot at present receive the attention which is considered necessary, I would recommend that an increased appropriation be made so that additional inspectors may be appointed to meet the demands made upon the department.

For your consideration, I recommend that a vault be built of such material that the plans and records of this department now on file may have a place of safety, for if same were destroyed it is a question if they could be duplicated; if so, at an expense exceeding many times the cost of the vault.

In this connection, would state that our record plans are referred to daily by companies wishing to use the streets in this city, and are very valuable as public records, and are now kept in wooden cases without any safeguard whatever.

The department has rendered just treatment to all parties with whom it has had dealings.

Details of department work, etc., will be found under their appropriate heading.

Yours respectfully,

PATRICK J. KENNEDY,
Commissioner of Wires.

EXTERIOR DIVISION.

The prescribed district for 1905 was Maverick square and Meridian street, East Boston, from Sumner street to the Chelsea boundary line, a distance of five thousand three hundred and eleven (5,311) feet, and Main street, Charlestown, from Water street to Charles street, a distance of five thousand two hundred and eighty (5,280) feet, exceeding by thirty-one (31) feet the distance authorized by law, namely, two miles per year.

Standing on Maverick square and Meridian street were eighty-two (82) poles, supporting about one hundred and forty-three thousand (143,000) feet of wire, owned by the Edison Electric Illuminating Company, New England Telephone and Telegraph Company, Fire Alarm Branch (B. F. D.), Police Signal Service (B. F. D.), and others. Wires on most of these poles were in a very crowded condition, crossing and recrossing the streets, in many places over the trolley wires of the surface railways.

On Main street, Charlestown, in the section prescribed for the placing of wires underground, there were ninety-three (93) poles, supporting about one hundred and thirty thousand (130,000) feet of wire, owned by the Charlestown Gas and Electric Company, New England Telephone and Telegraph Company, and the Edison Electric Illuminating Company. On the west side of the street was a heavy line of chestnut poles, on which were telephone, high and low and extra high potential wires; these wires (extra high potential excepted) crossed over the L structure in a number of places.

The removal of poles and wires has been necessarily slow, owing to the failure of the Board of Aldermen to approve of pole locations selected by the companies for distribution purposes.

Much of the time of the inspectors has been given to examining new work, new installations being largely in excess of previous years, the number of inspections of this kind being ten thousand three hundred and fifty-four (10,354).

As to the general work of the division, it has been carried on much the same as in the past years, the usual attention being given to defective work and the correction of the same, the selection of new pole locations, setting, resetting and removal of poles, erection of derricks, with the stringing of derrick guys, moving of buildings through streets where overhead wires are stretched, examining and approval of underground conduit locations, inspection of underground conduit, service connection and other construction, inspection of all overhead wire installations and the investigation of all reports of exterior fires and accidents supposedly of an electrical origination, those found to be of such nature being made the subject of special reports.

Accompanying this report will be found a plan showing the locations of poles and wires on and over that portion of the city which has been selected in accordance with the law as the underground district for 1906, namely, Albany street, Hampden street and Dudley street, from Dover street to Magnolia street. Also several photographs showing various phases of the work.

One or more representatives of the division have responded to all fires for which two or more alarms were sounded.

Considerable inconvenience has been experienced by the various electrical companies, owing to the changes made necessary along Washington street and the adjacent streets on account of the subway construction; nearly every tube and pipe has had to be changed in a more or less degree, and in consequence of this considerable temporary work has been necessary in order that the service between the companies and their customers and subscribers might be maintained uninterrupted.

While this work is still in an unfinished state, everything is being done to hasten the same, especially in those sections where the actual subway work has been finished, and all underground electrical changes in the upper portion of Washington street should be completed within a few months.

Some idea can be had of the extensiveness of these changes when we state that the Edison Electric Illuminating Company alone has already laid in Washington street and cross sections over fifty-three thousand six hundred (53,600) feet of duct, and this simply to take the place of that previously in the ground and to provide for future customers. This company has, perhaps, had more to do and to contend with along the line of the subway than the other companies, as they early decided that as such extensive changes were necessary they would at the same time remove their solid tubes from the streets and replace the same with the duct or drawing in system; this has of course necessitated much more work than otherwise would have been done.

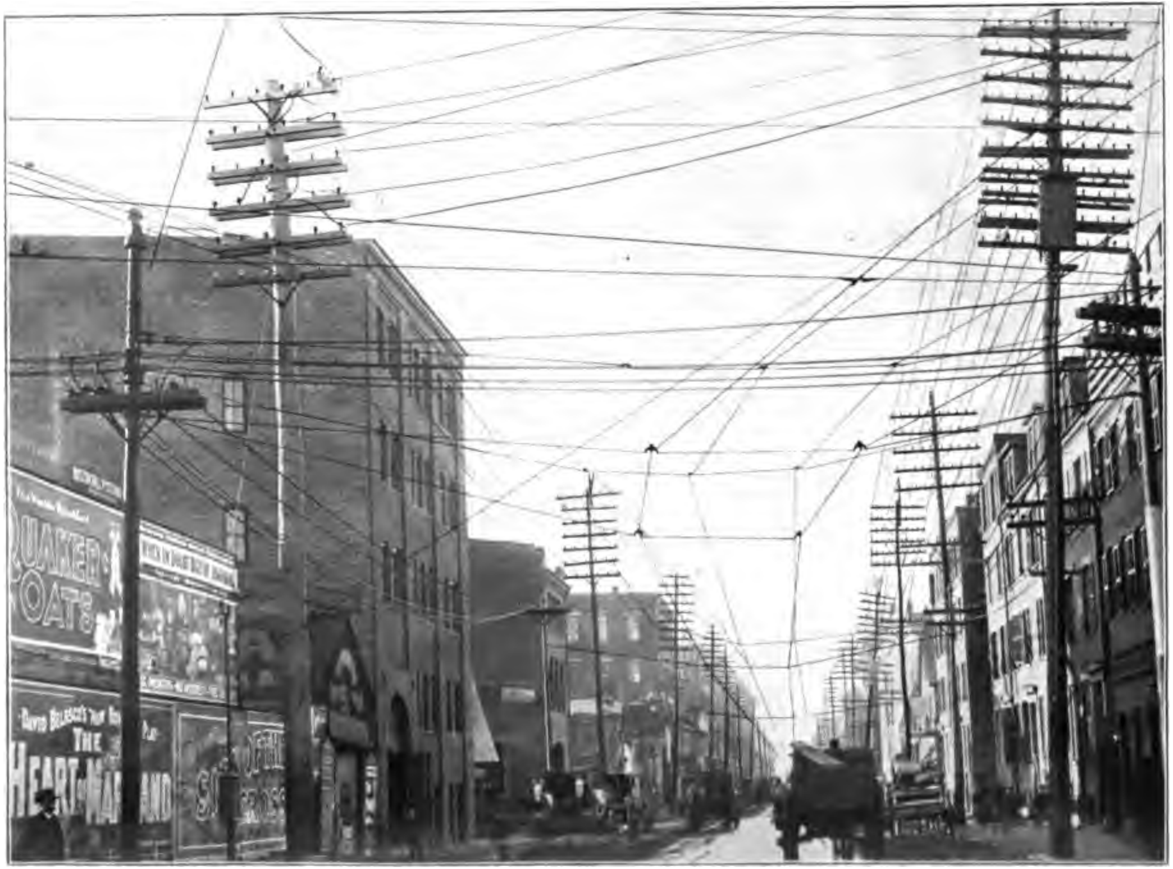

Plate No. 1 — Harrison avenue, south from Dover street, with wires.

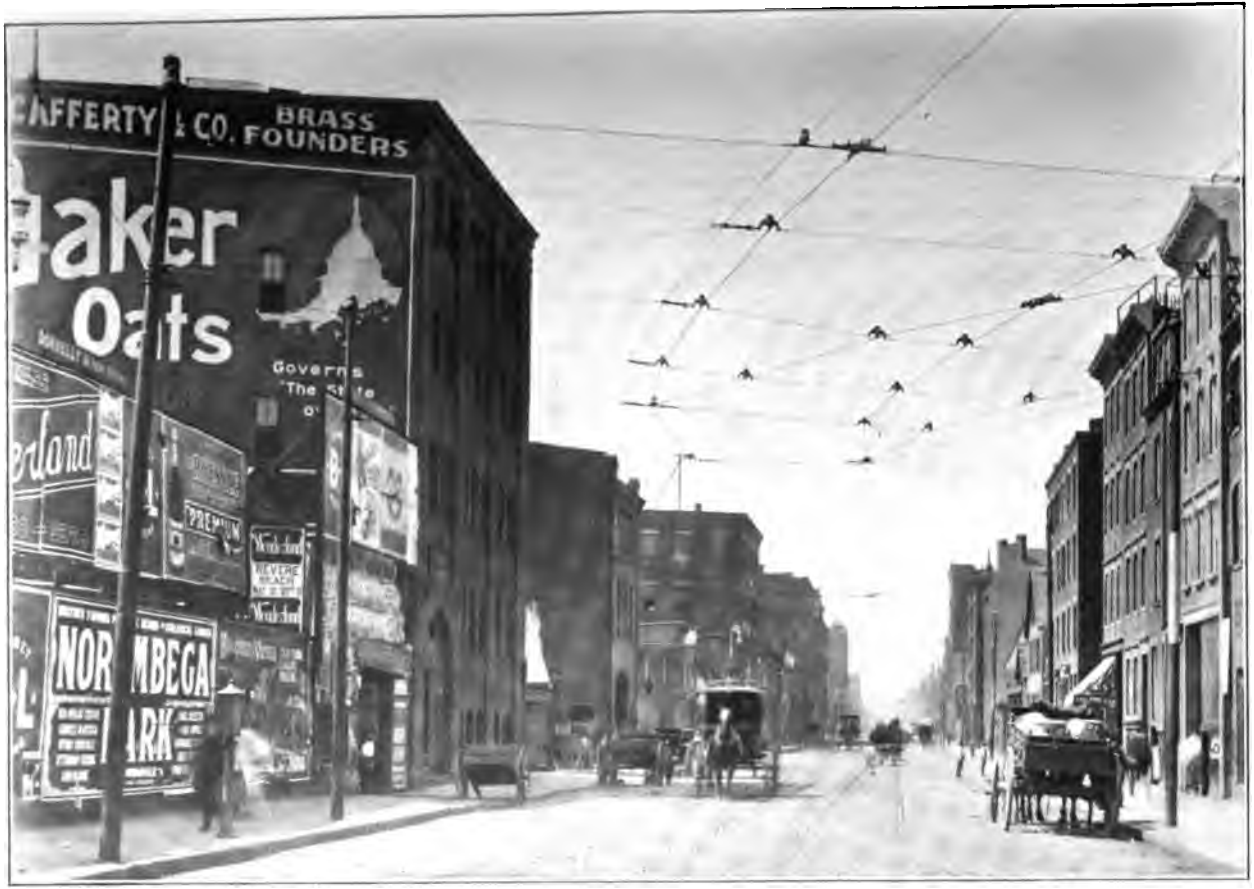

Plate No. 2. — Harrison avenue, south from Dover street, without wires.

It will be noticed that in some cases manholes have been built in the streets and the covers located in the cross-walks, a thing we endeavor to avoid as much as possible, but which in these cases was unavoidable, owing to the fact that at these points the underground construction has been so crowded that almost every available inch of space has been occupied.

In a number of instances it will be noticed that two covers, marked Edison Electric Illuminating Company, have been placed side by side, only a few feet apart. It does not, however, follow that there are two manholes, as this is done in cases where what is called an "accessible distribution box" has been installed in a manhole; this accessible distribution box differs from the old distribution or catch-box inasmuch that, while the old box was practically the same as to the top, cover and general inside construction, it was placed directly in the ground and there connected to the feeders and mains, and so was only accessible from the top unless the ground around the box was opened; but in the case of the new-style box it is placed in the top of one side of a manhole, and so is accessible from the bottom via the manhole, so that not only the catches are within easy reach without opening the street, but the connections and cables can be reached at any time simply by entering the other opening of the manhole. About twenty (20) of these boxes have been installed during the year along Washington street.

Table showing the overhead work from February 1, 1905, to January 31, 1906, inclusive:

Permits granted by the Board of Aldermen to set poles	66
Number of poles included in the above orders	316
Permits granted by the Board of Aldermen to remove poles	38
Number of poles included in these orders	158
Number of streets or avenues included in all the above orders	88
Number of new poles set in new locations	158
Number of poles removed	144
Number of poles reset	686
Number of new pole locations selected	544
Number of poles now standing	15,108
Amount of wire removed by the Wire Department (in feet)	268,915
Fixtures and outriggers removed by the Wire Department	60
Defect notices sent out	1,456

Number of defects included in these notices	3,986
Defects reported corrected	3,355
Notices of new work and special inspections	10,354
Amount of wire removed by owners, as reported (in feet)	1,818,859

Orders granted by the Board of Aldermen which come under the jurisdiction of this department, as they pertain in one way or another to the overhead or underground wires, but not included in above table:

Police signal post locations	9
Fire-alarm post and test box locations	18
Transfer of poles from one company to another	1
Extension of time for erecting poles	1
Attachments of one company's wires to poles of another	14
To cross streets with overhead wires	5
To cross streets with underground wires in conduits	2
Extension of street railway tracks, etc.	6
Erection of derricks	30
Moving buildings, etc.	18
Making a total of	104

The following is a list of the companies and individuals doing underground work during the year 1905:

For Electric Light and Power Purposes.

Barrister Hall Trust.
Boston Elevated Railway Company.
Boston and Maine Railroad.
Boston Consolidated Gas Company.
Charlestown Gas and Electric Company.
Edison Electric Illuminating Company.
John C. Haynes Plant, Stanhope street.

For Telephone, Telegraph, Signalling and Other Purposes.

Boston Automatic Fire Alarm Company.
Boston Auxiliary Fire Alarm Company.
Boston Low Tension Wire Association.
Fire Alarm Branch (Boston Fire Department).
Massachusetts Telephone and Telegraph Company.
New England Telephone and Telegraph Company.
Police Signal Service (Boston Police Department).
Postal Telegraph-Cable Company.
J. Roughan, Pond street, Jamaica Plain.
Walworth Manufacturing Company.
Western Union Telegraph Company.

The following companies have laid no new duct lines, but have drawn new cables into their old ducts:

American District Telegraph Company.
Boston District Messenger Company.
Holmes Electric Protective Company.
Mutual District Messenger Company.
Stock Quotation Telegraph Company.

During the year just closed the various electrical companies have opened one hundred and twenty-seven different streets in the city proper and suburban districts for the purpose of building new conduits or enlarging their existing systems; forty-nine of these were in the congested portion of the city, north of Dover and Berkeley streets, or the original underground district, while the remaining seventy-eight were scattered throughout the rest of the city. The continued increase in the use of electric light and telephone of course make it necessary from year to year to extend and enlarge old duct lines in order to provide for additional cables, etc.

The electrical approvals of the department for opening the streets for underground electrical work have been increased by one hundred and seventy-nine over last year, or a total of sixteen hundred and seven in all, and our inspectors have made about seven thousand thirty-six inspections on these various street openings.

The various companies have followed their usual custom in regard to providing for distribution points in the new underground districts, and have established terminal poles as follows:

By the Boston Elevated Railway Company.

Meridian street, at pole No. 204–115.
Lexington street, at pole No. 206–6.
Bennington street, at pole No. 205–6.
Sumner street, at pole No. 200–34.

By the Charlestown Gas and Electric Company.

Chapman street, at Main street.
Devens street, at Main street.
Franklin street, at Main street.
Green street, at Main street.
Henley street, at Main street.
Miller street, at Main street.
Thompson square, at Warren street.
Warren avenue, at Front street. (All Charlestown.)

By the Edison Electric Illuminating Company.

Cedar street, at Washington street.
Canton street, West, opposite No. 63.
Chelsea street, at Maverick square. (East Boston.)
Commonwealth avenue, at Beacon street.
Condor street (2 poles), one on each side of Meridian street, East Boston.
Central square, at Porter street.
Decatur street, at Meridian street.
Falcon street, at Meridian street.
Gove street, at Meridian street.
Havre street, at Meridian street.
Huntington avenue, on private property, at No. 77.
Lexington street, at Meridian street.
Marion street, at White street.
Leverett street, at Charles street.
Maverick street, at Meridian street.
Meridian street, at Gove street.
Paris street, at Meridian street.
Princeton street, at Meridian street (2 poles).
Paris street, at No. 64.
Porter street, at Central square.
Sumner street, at No. 221.
Sumner street, at Lewis street.
Sumner street, at Maverick square.
Warren avenue, at Dartmouth street.
Warren avenue, at Clarendon street.
White street, near Marion street.

By the New England Telephone and Telegraph Company.

A street, at Melcher street.
Bunker Hill street and Lexington street.
Bunker Hill street and Sprague street.
Brandon street, opposite Corinth street.
Centre street, at Dudley street.
Chapman and Main streets.
Chelsea street and Bainbridge street.
Dudley street, at No. 59.
Dunstable and Main streets.
Eden street and Main street.
Eliot square, opposite No. 26.
South Eden street and Main street.
Essex street and Main street.
Francis street and Huntington avenue.
Gurney street and Tremont street.
Harvard street, at Main street.
Harvard street, at Vaughan street.
Havre and Meridian streets.
Harrison avenue, at Eustis street.

Lincoln street, at Main street.
Lyndhurst street, rear of No. 44.
Lexington street, at Tremont street.
Linwood place and Main street (2 poles).
Lenox street, at Shawmut avenue.
London street, at Meridian street.
Miller and Main streets.
Montrose street, at Warren street.
Market and Sparhawk streets.
Oak and Main streets.
Parker street, at Tremont street.
Prentiss and Mindora streets.
Private way, rear Gainsboro street.
Stacy street, at Main street.
Sullivan street, near Main street.
Salem street, at Main street.
South and Brandon streets, W. Roxbury.
Shawmut avenue and Sterling street.
Shawmut avenue, at No. 728.
Shawmut avenue and Ball street.
Shawmut avenue and Sawyer street.
Sparhawk and Bentley streets, Brighton.
Union and Main streets, Charlestown.
Victoria street, at No. 3.
Vine and Tufts streets, Charlestown.

Nineteen of the regulation combination lamp and signal box posts have been located by the Fire Alarm Branch of the Boston Fire Department during the year, most of which were connected to the ducts of the New England Telephone and Telegraph Company, and the balance to their own conduits. They have also located and connected to underground system six test boxes.

Seventeen iron signal box posts have been located and connected to the ducts of the New England Telephone and Telegraph Company or their own ducts by the Police Signal Service of the Boston Police Department during the year, and they have also erected and connected with the underground system three test boxes.

There has been no change in general make up of the Boston Low Tension Wire Association during the year, as the company consists, as heretofore, of the Boston Automatic Fire Alarm Company, Boston District Messenger Company, Boston Electric Protective Association, Mixer Brothers, Mutual District Messenger Company, Holmes Electric Protective Company, Postal Telegraph-Cable Company, Stock Quotation Telegraph Company and United Telegram Company.

New conduits have been built during the past year in the following streets, the companies owning, with the number and style of ducts used in each case, being as follows:

Drawing-in System of the Edison Electric Illuminating Company.

Street.	From	To	No. of Ducts.	Type.
Bedford	Opp. Harrison-ave. ext.		2	Vit. clay
Boylston	Washington	Bumstead ct.	18–30–21	" "
Bromfield	Washington	Province	4	" "
Central sq.	Border	Meridian	6	" "
Central sq.	Liverpool	Saratoga	8	" "
Central sq.	Meridian	Porter	4	" "
Congress	At Milk		1	Wrgt. iron
Congress	Opp. Matthews		1	" "
Commonwealth ave.	At Beacon		2	Vit. clay
Chatham	Merchants row	E. E. I. Station	30	" "
Essex	Opp. No. 13	Washington	21	" "
Essex	At Washington		24	" "
Exeter	Commonwealth ave.	Beacon	2	" "
Harrison ave.	Opp. Randolph		1	Wrgt. iron
Hawkins	At E. E. Ill. Co. Station			Manhole
Hayward pl.	No. 4	Harrison ave.	8–10	Vit. clay
High	At Hartford		1	Wrgt. iron
La Grange	At Washington			Manhole
Maverick sq.	No. 14	Sumner	3	Wrgt. iron
Maverick sq.	Maverick	Chelsea	1	" "
Maverick sq.	No. 8	Maverick	4	Vit. clay
Maverick sq.	No. 8	Sumner	2	" "
Maverick sq.	Meridian	Chelsea	4	" "
Meridian	Saratoga	Bridge	8	" "
Meridian-st. bridge	Nay	Draw	4	
Merchants row	State	Chatham	24	Vit. clay
Milk	At Pearl		1	Wrgt. iron
Milk	At Devonshire		1	" "
Newcomb	No. 50	Washington	1	" "
Norway	Falmouth	Massachusetts ave.	2	Vit. clay
Pearl	At High		1	Wrgt. iron
St. Paul	Norway	Falmouth	2	Vit. clay
School	At Tremont		1	Wrgt. iron
State	At Exchange		1	" "
State	At Merchants row		6	Vit. clay
Sudbury	Bowker	Hawkins	12	" "
Summer	Near Washington		4–10	" "
Summer	At Chauncy		3	Wooden
Sumner	At Maverick		4	Vit. clay
Tremont	At Eliot		1	Wrgt. iron
Tremont	At Beacon		1	" "
Tremont	At Beacon		18	Vit. clay
Union	At Friend		1	Wrgt. iron
Washington	Between Eliot and Franklin		4–8–10–12–14–20–24 and 25	Vit. clay
			1–3 and 4	Wrgt. iron
Winter	Near Washington			Manhole
White	Between Meridian and Marion		4	Vit. clay

Solid System of the Edison Electric Illuminating Company.

Street.	From	To	Type.
Atlantic ave.	At Pearl		1000 tube
Atlantic ave.	At No. 452		200 "
Batavia	No. 44	Hemenway	350 "
Beacon	At Exeter		1000 "
Bowdoin sq.	At Chardon		200 "
Bromfield	At Province		750 "
Bryant	Hemenway	Fenway	350 "
Burroughs pl.	No. 17	Hollis	200 "
Cambria	No. 16	No. 26	200 "
Chambers	At McLean		200 "
Charlesgate West	Marlboro		350 "
Church	At Winchester		250 "
Commercial	At North End park		100 cable
Commercial	At Fleet		200 tube
Congress	At Exchange pl.		200 "
Cotting	Lowell	Wall	200 "
Dedham, East	Harrison ave.	Albany	350 "
Federal	At High		350 "
Franklin	At No. 37		200 "
Franklin	At Hawley		Catch-box
Franklin	At Federal		750 tube
Fulton	At Richmond		200 "
Garrison	St. Botolph	Private way	200 "
Hanover	At Prince		350 "
Harrison ave.	At Thayer		250 "
Hayward pl.	Washington	Harrison ave.	250 "
Hawley	No. 67	Franklin	200 "
Hemenway	Gainsboro	Bryant	350 "
Kennard ave.	No. 11	Poplar	200 "
Marlboro	No. 437	Charlesgate East	350 "
Massachusetts ave.	At Newbury		200 "
Melcher	A	Summer	350 "
Rollins	No. 9	Washington	200 "
St. Paul	Norway	Falmouth	500 "
State	At Merchants row		Catch-box
State	At Congress		1000 tube
Somerset	At Pemberton sq.		350 "
Stillings	Congress		200 "
Summer	At Bedford		350 "
Sudbury	At Bowker		350 "
Temple	No. 20	Cambridge	200 "
Tremont	At Pemberton sq.		1000 "
Tremont	At Houghton & Dutton's		350 "
Tremont	At Lucas		250 "
Wareham	Opp. No. 67	Opp. No. 73	250 "
Washington	Pleasant	Hollis	350 "

New England Telephone and Telegraph Company.

Street.	From	To	No. of Ducts.	Type.
Adams	Dorchester ave.	Arcadia	12	Vit. clay
Arcadia	Adams	Draper	10	" "
Bainbridge	Moulton	Chelsea	4	" "
Bentley	Sparhawk	Henshaw	4	" "
Bowdoin	Westville	Washington	6	" "
Bunker Hill	Lexington	Vine	4	" "
Chapman	Washington	New Prison Point bridge	4	" "

Street.	From	To	No. of Ducts.	Type.
Chestnut	Charles	River	2	Vit. clay
City sq.	Main	Park	15	" "
Clarendon	Tremont	Alley	2	" "
Congress	At Farnsworth		2	" "
Cooper	Endicott	Washington	4	" "
Cordis	High, westerly		6	" "
Cross	High	Bartlett	4	" "
Draper	Arcadia	Westville	10	" "
E	Fourth	Broadway	6	" "
Farnsworth	Congress	New Station	2	" "
Fourth, West	E	F	9–10	" "
Gainsboro	Huntington	Alley	2	" "
Henshaw	Wirt	Bentley	4	" "
Harvard ave.	Holmes	Brookline line	3	" "
Hayward pl.	Washington		6	" "
High	Cross	Lexington	4	" "
High	At Congress		1	Wrgt. iron
Huntington ave.	Heath	Brookline line	12	Vit. clay
Ipswich	Boylston	Fenway	3	" "
La Grange	Across Washington	Beach	12	" "
Lakeville pl.	Off Centre		2	" "
Lexington	Bunker Hill	High	4	" "
Leverett	Opp. Charles		6	" "
Longwood ave.	Bellevue ave.	Brookline ave.	3	" "
Lyndhurst	Washington, easterly		2	" "
Main	Alford	Medford	10	" "
Main	Pleasant	City sq.	15	" "
Marlboro	Berkeley	Arlington	1	Solid sys.
Maverick	Chelsea	Bremen	2	" "
Meridian	Maverick sq.	Central sq.	6	" "
Milk	At Congress		2	Wrgt. iron
Moulton	Vine	Bainbridge	4	Vit. clay
Neponset ave.	Adams	Pope's Hill	6	" "
Newbury	Kenmore	Charlesgate West	2	" "
Pleasant	Warren	Main	6	" "
Prentiss	Tremont	Mindora	3	" "
Ruggles	Cabot	Westminster	4	" "
Saratoga	No. 35	Meridian	9	" "
Sparhawk	Market	Bentley	4	" "
Thatcher	Endicott	Lynn	2	" "
Victoria	Westerly from Dorchester ave.		2	" "
Vine	Bunker Hill	Moulton	4	" "
Warren ave.	City sq.	Bridge	12	" "
Warren	Cordis	Pleasant	8	" "
Warren	Walnut ave.	Elm Hill ave.	6–7–12–14	" "
Washington	At Cornhill		1	Iron
Washington	Bet. Boylston and State		4–8	Vit. clay
Washington	Walk Hill	Railroad bridge	8	" "
Westville	Draper	Bowdoin	8	" "
Wirt	Washington	Henshaw	18	" "

Police Signal Service (Boston Police Department).

Street.	From	To	No. of Ducts.	Type.
Baldwin	Main	Rutherford ave.	1	Wrgt. iron
Chapman	At Rutherford,	connecting N. E. T. & T. and P. T. C. mhs.	1	" "
Eutaw	Meridian	Border	1	" "

(Joint line of P. S. S. and B. F. Alarm.)

Fire Alarm Branch (Boston Fire Department).

Street.	From	To	No. ot Ducts.	Type.
Commercial	At State		4	Wrgt. iron
Commercial	At Richmond		4	" "
Washington	Blue Hill ave.	Ladder House 23	1	" "

Charlestown Gas and Electric Company.

Street.	From	To	No. of Ducts.	Type.
City sq.	At Main		2	Vit. Clay
Main	City sq.	Charles	8–12	" "
Main	Somerville line	B. & M. R.R.	2	" "
Thompson sq.	Main	Warren	2–3	" "

Boston Consolidated Gas Company.

Street.	From	To	No. of Ducts.	Type.
Beacon	Ayer road		1	Wrgt. iron

Boston Elevated Railway Company.

Street.	From	To	No. of Ducts.	Type.
Bennington	Central sq.	Pole No. 205/6	6	Vit. clay
Lexington	Meridian	Pole No. 206/6	2	" "
Maverick sq.	Sumner	Winthrop	2	" "
Meridian	Elbow	Nay	4–5–10	" "
Meridian-st. bridge		The draw	4	Wrgt. iron

Boston Low Tension Wire Association.

Street.	From	To	No. of Ducts.	Type.
Mason	West	Avery	2	Wrgt. iron
West	No. 12	Mason	2	" "

Boston & Maine Railroad.

Street.	From	To	No. of Ducts.	Type.
Warren ave.	Across at the railroad crossing.		3	Vit. clay
Charles River ave.	Across at the railroad crossing.		3	" "

J. C. Haynes Plant (Stanhope Street).

Street.	From	To	No. of Ducts.	Type.
Private way	At rear of No. 46 Stanhope		4	Vit. clay

Massachusetts Telephone and Telegraph Company.

Street.	From	To	No. of Ducts.	Type.
Bedford	Lincoln	Kingston	3	Vit. clay
Lincoln	Tufts	Beach	3	" "
South	Summer	Tufts	3	" "
Summer	High	Lincoln	3	" "
"	"	South	3	" "
Tufts	South	Lincoln	3	" "

Walworth Manufacturing Company.

Street.	From	To	No. of Ducts.	Type.
East First	Between their buildings		1	Iron

Western Union Telegraph Company.

Street.	From	To	No. of Ducts.	Type.
Devonshire	Adams sq.	State	1	Wrgt. iron

Character of Cables Used by the Various Companies.

COMPANY.	Kind of Insulation.	Sizes.
American District Telegraph Co..	Rubber.............	20 conductor.
Boston Automatic Fire Alarm...	Rubber.............	15 conductor.
Boston Auxiliary Fire Alarm.....	Rubber.............	4 conductor.
Boston District Messenger Co.....	Rubber.............	2 conductor.
Boston Elevated Railway Co......	Rubber and paper..	From No. 6 to 1,000,000 C.M.
Boston Consolidated Gas Co......	Rubber.............	No. 6.
Charlestown Gas and Electric Co..	Rubber and paper..	No. 6 to 0000.
Edison Electric Illuminating Co..	Rubber and paper..	No. 6 to 500,000 C.M.
Fire Alarm Branch (B. F. D.).....	Rubber.............	4 to 19 conductor.
Holmes Electric Protective Co....	Rubber.............	10 conductor to 18 pair.
Massachusetts Tel. and Tel. Co...	Paper.....	25 to 100 pair.
Mutual District Messenger Co....	Rubber.............	10 and 20 conductor.
New England Tel. and Tel. Co....	Paper..............	30 to 480 pair.
Postal Telegraph-Cable Co........	Paper..............	12 conductor.
Police Signal Service (B. P. D.)...	Rubber.............	7 conductor.
Western Union Telegraph Co.....	Rubber and paper..	15 to 125 conductor.

Table Showing the Underground Electrical Service of Boston.

	To 1905.	1905.	Jan. 31, 1906.
Feet of conduit..............................	1,346,403	62,095	1,408,498
Feet of single duct.........	8,697,645	423,699	9,121,354
Feet of cable................................	10,802,832	597,766	11,400,598
Number of manholes.........................	6,106	282	6,388
Number of service connections.....	12,597	794	13,391
Feet of solid tubing (Edison)...............	534,283	14,129	548,412
Distribution boxes (Edison).................	482	7	489
Park boxes....................................	145	....	145

NOTE.—Of the 14,129 feet of Edison tubing mentioned above, 5,499 feet is reckoned as conduit, but is not included in the 62,095 feet of conduit in this table.

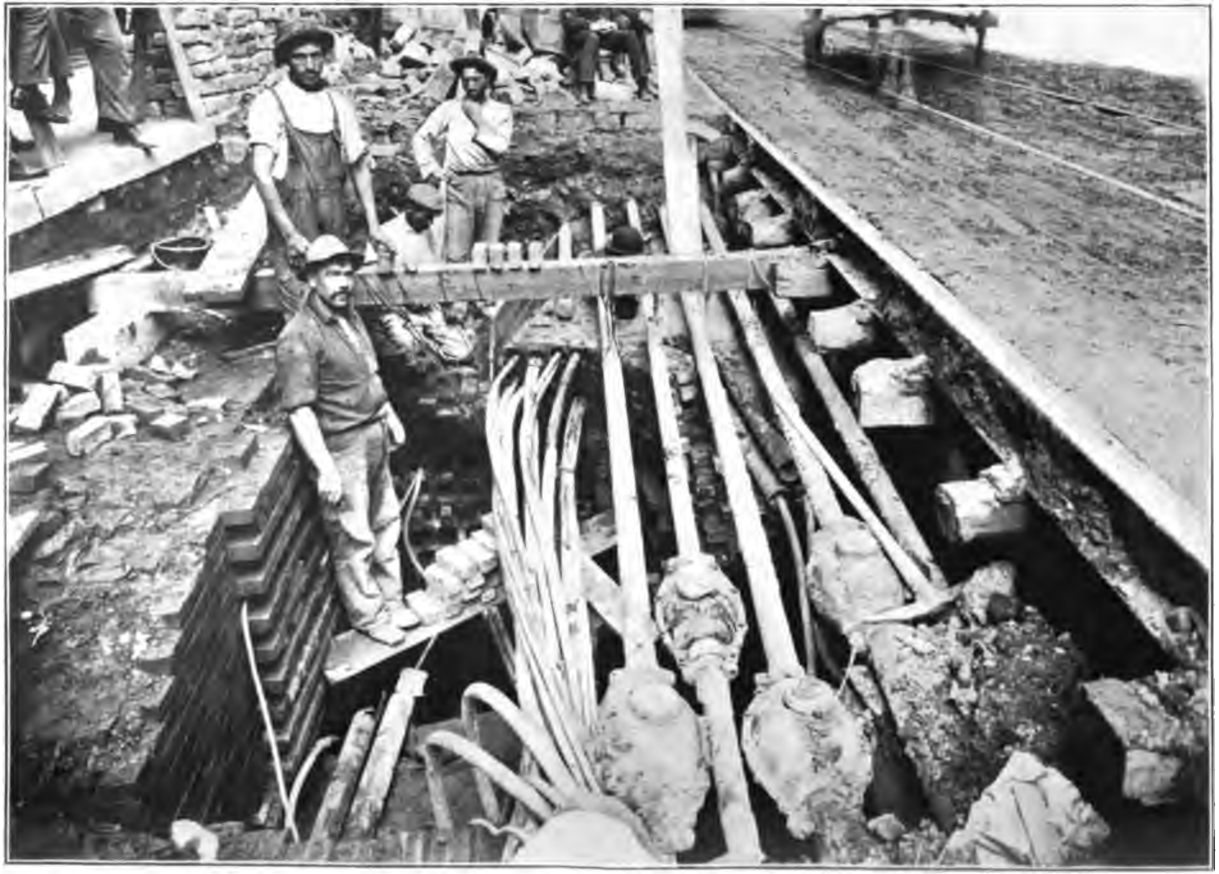

Plate No. 3. — Boylston street, near Washington street showing conditions existing previous to subway construction on Washington street.

INTERIOR DIVISION.

It has been noted in reports of previous years that it was unfortunate old work could not receive the attention that it deserves owing to the amount of work entailed upon the inspection force by the supervision of new work and to the fulfilling of duties called for in chapter 268 of the Acts of 1898.

During the past year while old work has not received all the attention which its importance warrants, it has received more attention than during any previous year since the department was organized. This attention to old work was made practicable by the addition to the Interior Division of one inspector, whose efforts were utilized in the inspection and testing out of old installations.

As results of these inspections and tests many dangerous defects were found which were brought to the attention of the proper parties, and in the majority of cases a notification of defects with a request for correction of same was all the action necessary on part of the Commissioner, the responsible parties upon receipt of notification promptly complying with the request contained in same.

There were some cases, however, where it was necessary to inform the parties that unless defects were corrected within a specified time the company supplying current to defective installation would be requested to discontinue current for same. In no case was it necessary for the Commissioner to take this drastic action, as parties so notified corrected defects before the time limit expired.

The results obtained by the inspecting of old work emphasized the necessity of such inspections, as not only were many faults due to the natural deterioration and age of the installations discovered, but there were also many defects found of a very dangerous nature, due to additions to and changes in the original installations by parties incompetent to perform such work.

Chapter 450 of the Acts of 1894, relating to the licensing, inspection, etc., of theatres and halls, and which went into effect September 1, 1904, has been carefully complied with in so far as its provisions relate to the duties of the Wire Department.

Inspections and tests were made of the wiring of the halls licensed under the requirements of the law, and monthly inspections and tests were made of the permanent wiring at each and every theatre; and in addition to this, weekly inspections were made of temporary wiring at the various theatres, which of necessity resulted in certain portions of the permanent wiring being inspected at the same time. The results of these inspections were very satisfactory; such defects as were found, and which in so far as the permanent installations were concerned were usually of a minor character, were, if in the permanent installation, corrected, or if in the temporary installation they were corrected, or wiring cut out of service as soon as brought to the attention of the theatre managements, who in all cases cheerfully complied with our requests for corrections in such cases. Large stores and other places where the electrical equipments of same are constantly having changes made received careful attention.

During the year the eleventh station of the Edison Electric Illuminating Company of Boston has been completed and put into service.

This station is worthy of special mention, as it constitutes quite a radical departure from past practice in that it is located in what formed a portion of the sub-basement of a mercantile building in the heart of the city, but which was so treated in the construction of station that it now has no direct communication with any other portion of the building.

The entrance to the station, which is located in the Houghton & Dutton Tremont-street building, is at 59 Tremont street, where by means of iron ladders descent to the sub-basement level may be made. The well through which this entrance is made also serves the purpose of a ventilating shaft through which air is forced by ventilating apparatus in the station. The operating-room in this station is 40 feet 6 inches by 71 feet by 9 feet 2 inches. It is enclosed on two sides by the foundation walls of building, and on the other sides by brick walls each 2 feet 6 inches in thickness.

The ceiling is of steel and brick arch construction, and is plastered, as are also the east and south walls.

Four columns 2 feet 4 inches square support the floors above. The floor of the station is built of concrete, of sufficient thickness to furnish proper foundations for the apparatus to be installed. The entire construction of the station is such that it embodies the requirements of fireproof construction.

The high tension switchboard for controlling the 6,600 volt 3-phase 60 cycle service for this station is composed of concrete and cement slabs and barriers, with each line entering the station isolated in individual compartments. The A. C. cables are of the three-conductor type under one lead sheath, and are guaranteed for a working pressure of 15,000 volts.

They terminate in pot-heads from which flame-proofed cabled connections are made to the various switches, bus-bars and alternating current apparatus for the operation of the station. Each cable is controlled by oil switches mounted in individual compartments and operated by means of extended handles from the front of the direct current board.

The 230 volt direct current switchboard is composed of seven marble panels, and is located approximately 6 feet distant and directly in front of the A. C. switchboard.

The direct current leads from the generators to the switchboard are bare copper construction supported on suitable hangers attached to the ceiling. The direct current cables to the street system drop from the rear of the switchboard to a pit beneath the floor, from which they enter the conduit system of the Edison Company for the distribution of current to the adjacent district. This pit is covered by slate slabs 2 inches thick, arranged for removal at any time desired. An additional panel-board is installed adjacent to the above boards for the control of the station lighting, ventilating apparatus, etc.

The entire lighting service for the Houghton & Dutton buildings which is supplied from this station is taken from a special panel-board on the D. C. switchboard via a duct line in the floor to a room adjacent to the sub-station, where a suitable distributing switchboard is installed for the control of the building circuits.

The equipment of the station consists of 3,500 kilowatt, 60 cycle, 3-phase, 6,600 volt A. C. to 230 volt D. C. synchronous and induction motor generators, with provisions for the installation of four additional sets of the same size, making 3,500 kilowatt capacity in all. A balancing set of 60 kilowatt capacity is installed in one corner of the room, and is used to compensate for the unbalancing of the station. Two large ventilating fans are also included in the equipment, one of which is used to draw air into the station and the other to expel it. The fans are of such capacity that they will change the air in the station once every minute, this being necessary owing to the confined space in which the station is located. The station is supplied by duplicate

A. C. cables for the purpose of insuring continuous service, and both the A. C. and D. C. switchboards are provided with duplicate bus-bars. In addition, the station is connected by heavy direct current tie lines to the Atlantic-avenue station and to the Hawkins-street station, which are equipped with storage batteries in addition to the regular generating apparatus, thereby insuring the service to this station in every way practicable.

Plates in this report numbered six and seven are from photographs taken of station, and give a very good general idea of same.

The electrical equipment of the Atlantic-avenue station of the Boston Elevated Railway Company, which station is for use in connection with the East Boston Tunnel, and is referred to in the annual report for last year as not completed, was completed during the past year, the electrical equipment of station being as follows: For the lighting of the station there are seven circuits of 55 candle-power incandescent lamps, four circuits of 32 candle-power lamps, seventeen circuits of 17 candle-power lamps, and three circuits of arc-lamps. There are also two circuits of 16 candle-power lamps in each of the four elevator cars, making a total of 180 incandescent lamps and 15 arc-lamps fed normally with current from the system of the Boston Elevated Railway Company, lamps being in series of five.

Arrangements at this station in case of a failure in power normally feeding circuits are the same as provided for the lighting system of the tunnel sections and the other stations in connection therewith, as noted in report for last year, circuits being automatically switched to feed from 550 volt mains attached to and supplied from transformers, the primary current for which is taken from the system of the Edison Electric Illuminating Company.

There are also installed at different points about the station, and which burn continuously from the 3-wire 110 v.-220 v. D. C. low potential mains of the Edison Electric Illuminating Company, four 55 candle-power incandescent lamps, two 32 candle-power incandescent lamps and six arc-lamps.

There are four 70 horse-power, 575 volt compound wound motors, each motor controlled from its respective elevator car through a separate controlling panel, equipped with circuit breaker, electro magnetic contactors, etc.

These motors are fed by special 500,000 C. M. feeder wire from Lincoln power station, feed wire before entering Atlantic-avenue station entering one side of a single pole, double-throw 500 volt feeder switch. By means of this double-throw switch, current may be cut out of Atlantic-avenue station entirely, or current may be taken from either the special feeder from Lincoln power house or from the Central power station through the surface car trolley section in the vicinity. This double-throw switch is located on the elevated structure adjacent to the Atlantic-avenue station and accessible to employees of the company.

There are also in the building two 15 horse-power motors, direct connected to ventilating fans, used for the ventilation of the tunnel.

The elevator motors are located on the top floor of building, while the fan motors are located on the second floor above the tunnel level.

On the first floor of station above the tunnel the main emergency service from the system of the Edison Electric Illuminating Company is brought in. Here is installed the 50 k. w., type D, oil filled transformer from the Fort Wayne Electric Works, the primary side being fed from the 2,300 volt service of the Edison Electric Illuminating Company, while the secondary wires after passing through suitable controlling apparatus on a slate panel-board nearby, runs to the switchboard room at the Devonshire-street station.

Also at this point is brought in the 3-wire 220 volt D. C. service of the Edison Electric Illuminating Company, from which, as already referred to, several emergency arc and incandescent lamps are fed continuously.

During the year a very important work has been under way, tending toward the minimizing of the dangers to life incident to the possibilities of high potential current entering buildings over the secondary wiring of same, due to either a break-down in transformer insulation or to crosses between secondary and high potential wires.

The matter has been receiving serious consideration for some time, and several consultations had been held between representatives of the Edison Electric Illuminating Company and the Wire Department relative to same. The Rules and Requirements of the Commissioner, edition of 1901 and subsequent editions, have permitted, but have not required, the grounding of low potential systems, the rules regarding this matter being similar to those of the "National Electrical Code."

In 1901 the Edison Electric Illuminating Company began installing alternating current secondary systems of feeders supplied by large capacity transformers, to replace individual transformers from which, with a few exceptions, current for their customers in the so-called alternating current districts had been supplied. Since that time, many of the overhead secondary systems installed were grounded, the grounds being made at certain of the carrying poles of the circuits. There were several small secondary systems, however, and all the individual transformers, possibly with one or two exceptions, which were not intentionally grounded.

In September, 1904, the matter was again taken up, our position being substantially that we believed in the advisability of grounding the neutral of transformers or the neutral wire of alternating current secondary systems, and, where no neutral point or wire was accessible, the grounding of one side of secondary system, also that on all secondary systems where transformers fed wiring of more than one consumer or where secondary wires were so run in proximity to other wires as to make crossing between secondary wiring and wires of high potential possible, we considered it imperatively necessary in the interests of safety, and request was made to the Edison Electric Illuminating Company that not only in all future installations of this nature should the proper grounding of secondary installations be made, but that all installations of this nature already installed should be grounded as soon as practicable. Later we were informed that it was the intention to ground all individual transformer systems as well as systems feeding two or more premises, in Boston and neighboring territory, the ground wires to be connected to the water service pipes just inside of where they enter buildings.

During the past year, in this city alone, about 1,000 ground wires, each being No. 4 B. & S. gage, rubber insulated copper wire, have been installed on alternating current old services and about 200 on new services.

Before services were grounded by the Edison Electric Illuminating Company, matter was carefully considered at a joint meeting between representatives of their company and of the Wire Department, the Boston Board of Underwriters and the New England Insurance Exchange, representing the inspection interests, and details regarding the manner of installing ground wire was determined upon.

The installing of ground wires has necessitated the inspection and testing of a great deal of old wiring, as the attaching of a ground to any installation was not approved unless the results of test showed a satisfactory insulation resistance, and where wiring was found to be in unsafe condition from any cause changes were called for, and many improvements in old installations resulted thereby.

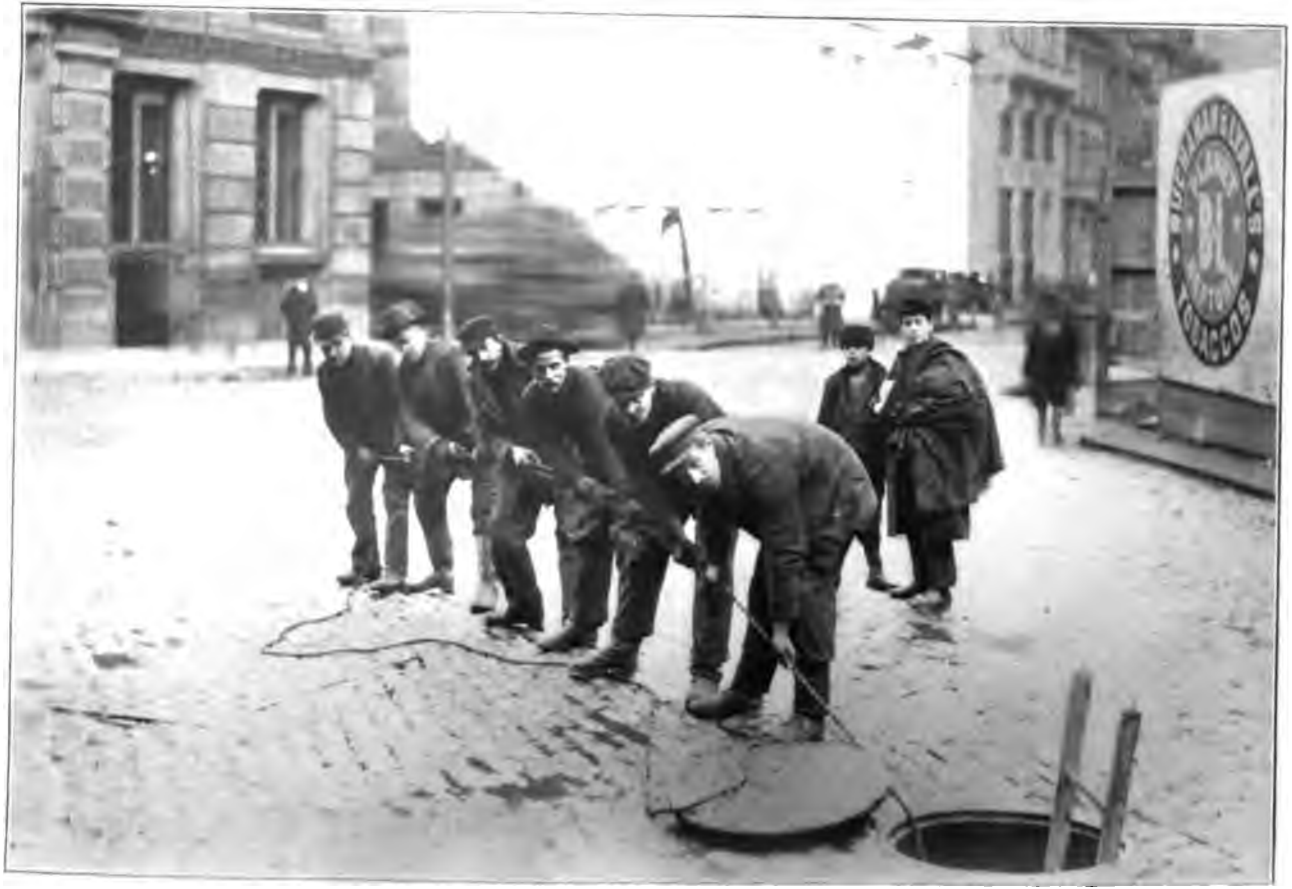

Plate No. 4 Method employed in drawing cable in 1904

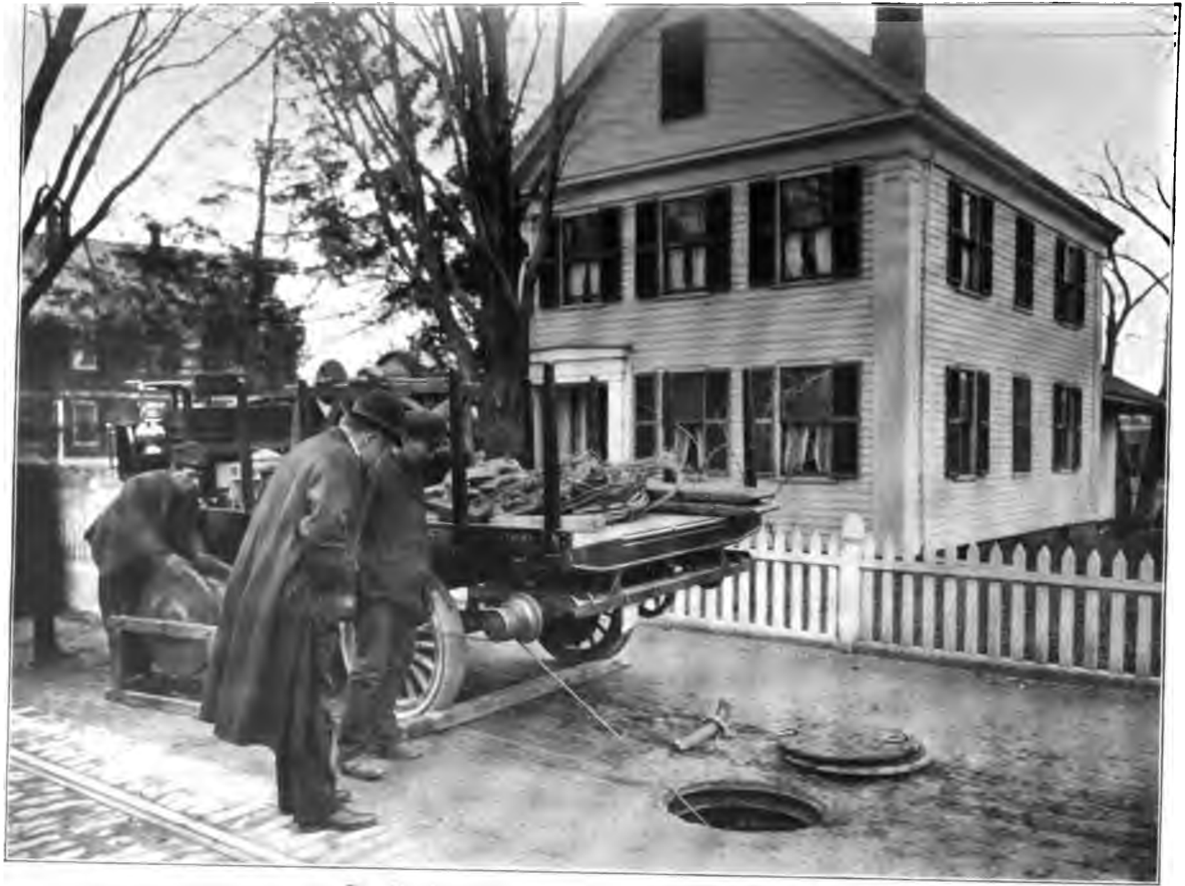

Plate No. 5. — Method employed in drawing cable in 1906.

It may be well to note that the method of running ground wires, as determined at the joint meeting above referred to, differed somewhat from what was at that time the "National Electrical Code" requirements, but at the general meeting held in New York in December under the auspices of the "Underwriters' National Electric Association," changes were made in the "Code" requirements relative to the grounding of low potential systems, and requirements as in force in this vicinity were adopted.

As in past years, the Department Laboratory has proved of great value, many tests being made during the year, results of which enabled intelligent decisions to be rendered in reference to electrical devices submitted for approval for use in this city.

All reports of fires and accidents as due, or supposed to be due, to electrical causes have been given prompt attention, careful investigations made and records of same kept. During the year no fire occurred caused by wiring approved by this division. Fires for which three or more alarms have been given have been responded to by members of the department.

During the past year the number of electric fires originating in the interior of buildings has been twenty (20), as compared with twenty-three (23) and thirty-two (32) fires respectively for the two years previous. Of this number, fourteen (14) were of minor character and entailed no insurance loss. The other six (6) fires were comparatively small, there being but one fire where the insurance loss was over seven hundred dollars ($700), and the total insurance loss by the six fires, and including loss by two fires that started on the outside wall of building and burned through to the interior of building, was but six thousand five hundred and seventy six dollars and thirty-one cents ($6,576.31).

The heaviest insurance loss for the year due to a fire attributed to electrical causes was four thousand and eighty dollars ($4,080). This fire occurred on July 14, at the New Old South Church, and was evidently due to a defectively wired wall-bracket, insulation of flexible cord with which bracket was wired breaking down, a hole being melted in a gas pipe back of insulating joint and gas ignited by electric arc.

Of the other fires, one, causing a loss of four hundred and four dollars and thirty-seven cents ($404.37), was caused by sparks from an electric motor igniting inflammable material; one fire, resulting in a loss of two hundred dollars ($200), was caused by the flash of a short circuit igniting cotton; one fire, causing a loss of six hundred and fifty-two dollars and ninety-four cents ($652.94), was attributed to grounding of electric light circuit by a nail driven through insulation on wire and into contact with a gas pipe ; one fire, resulting in a loss of two hundred dollars ($200), was caused by a short circuit in service cables entering building from underground; one fire, causing an insurance loss of four hundred and eighty-nine dollars ($489), mostly due to smoke damage, was caused by a short circuit in cable in elevator well, cable being used for conducting current to lamps in elevator car; two fires, causing losses respectively of three hundred dollars ($300) and two hundred and fifty dollars ($250), were started on the outside of a wood stable from a grounded series arc circuit, the fire in each case burning through wall to the inside of building. While these two fires started outside of buildings, they are included in the losses of interior fires due to electrical causes, as holes were burned through walls and fire communicated to the interior, where the greatest amount of damage resulted.

There were two cases where electric current entered buildings over pipes with consequent arcing between gas, water and other pipes and damage to same, the source of current being underground electric mains in which burnouts had occurred in street.

There were two cases where high potential current entered buildings over the secondary wiring of same, in both cases a cross occurring between high and low potential circuits at points near where secondary wires left transformers on poles to enter houses.

During the year there were nineteen (19) accidents, two of which resulted in the death of the victims. With few exceptions the injuries resulting from the other seventeen (17) accidents were slight. One of the fatal accidents occurred to a telephone lineman who, while at work on wires of his company, came in contact with a high potential wire, causing him to fall to the ground, he thereby receiving injuries which caused his death. The other fatal accident occurred to an experienced workman who was at work in one of the stations of the Edison Electric Illuminating Company at the time of accident, and who made contact with a high potential wire, current from same being grounded through his body. Of the seventeen other accidents five (5) were to experienced men who were at work on wires at the time accidents occurred; two were to painters at work on the elevated railroad structure at the time; one was to a boy who had climbed up to where he came in contact with a high potential wire, and who, in addition to receiving shock and burns, was seriously injured by falling to ground; one passenger on elevated train who fell from same received, in addition to other injuries, severe burns by coming in contact with live third rail; a policeman who received severe shocks and slight burns while attempting to use a police signal box which was charged with high potential current as a result of a cross between pole signal and high potential wires; a fireman who received slight shocks by coming in contact with wires at a fire; two laborers at work on a derrick, the guy-wire of which came in contact with high potential wires, received severe shocks; two persons received severe shocks and slight burns from a secondary circuit which was crossed outside of building with a primary circuit, and two persons received slight shocks from an electrically charged trolley pole.

The following is a complete summary of the work of the Interior Division for the year ending January 31, 1906:

Notices of new work received	9,317
Buildings in which wiring was completely examined	590
Incandescent lights examined	686,231
Arc lights examined	6,028
Motors examined	3,006
Total horse-power of motors examined	11,667¼
Services examined	595
Inspections made	23,588
Defects reported	1,289
Defects corrected	905

Other defects are in process of correction.

During the year there have been fifty-nine fires or accidents to property, the origin of which was traced to electricity.

Fires in interior of buildings	20
Fires on outside walls of buildings	4
Fires at bridges	4
Fires on poles	3
Explosions in manholes	3
Miscellaneous (exterior)	18
Miscellaneous (interior)	7
	59

The following is a record of isolated plants in operation in this city:

Number of plants,	276.		
" " boilers,	611,	total horse-power,	62,049
" " engines,	407,	" "	39,399

Number of generators,	488,	total k. w. capacity,	21,287
" " motors,	1,074,	" horse--power,	9,235
" " incandescents,	205,439.		
" " arcs,	3,681.		

The record of plants the operation of which was discontinued during the year is as follows:

Number of plants,	9.		
" " boilers,	7,	total horse-power,	444
" " engines,	9,	" "	442
" " generators,	14,	" k. w. capacity,	306½
" " motors,	7,	" horse-power,	114½
" " incandescents,	1,672.		
" " arcs,	34.		

The record of new plants installed and inspected is as follows:

Number of plants,	11.		
" " boilers,	15,	total horse-power,	1,550
" " engines,	14,	" "	846
" " generators,	15,	" k. w. capacity,	416
" " motors,	29,	" horse-power,	137¾
" " incandescents,	3,552.		
" " arcs,	8.		

During the year ending January 31, 1906, there were four (4) old plants inspected, the equipment of which was as follows:

Number of boilers,	17,	total horse-power,	1,875
" " engines,	9,	" "	750
" " generators,	11,	" k. w. capacity,	450
" " motors,	26,	" horse-power,	116¾
" " incandescents,	7,630.		
" " arcs,	11.		

FIRES AND MISCELLANEOUS TROUBLES DUE TO ELECTRICITY.

February 13, 1905, 4.07 A.M., Box 412, 47 Lowell street; fire in basement; insurance loss, $200.

February 13, about 6 A.M., near 47 Lowell street; slight explosion in manhole of the Edison Electric Illuminating Company.

February 18, about 12.25 P.M., Washington street, at the foot of School street; explosion in manhole, cover of same being thrown a number of feet in the air; no damage other than breaking of manhole cover when it fell.

March 8, 2.21 A.M., Box 73, opposite 267–269 Shawmut avenue; tree fire due to high potential wires being in contact with tree.

March 10, shortly after 11 A.M., opposite 325 Shawmut avenue; arcing and flashing at defective insulator of span wire supporting trolley wire.

March 8, about 8.30 P.M., corner of Dedham street and Harrison avenue; break-down in insulation of series arc-wire, current arcing between wire and lead sheath of cable coming from underground terminal pipe to pole; insulation of wire burned for several feet.

March 15, 9.06 A.M., Box 56, 311 South street; short circuit in service cable of the Edison Electric Illuminating Company, entering building from underground; no damage except to insulation of wires in the immediate vicinity of service and to the backboard upon which wires were mounted.

March 18, about 7.50 P.M., opposite 3 Worcester square; tree fire caused by high potential arc-light wire coming in contact with tree; fire department called on still alarm.

March 19 (evening), opposite 67 Fort avenue; tree fire; high potential wires in contact with limb of tree; no damage.

March 25, 6.22 P.M., Box 36, 53 State street; fire on eighth floor; insurance loss, $200.

March 28, shortly after 7.30 P.M., opposite 275 Shawmut avenue; tree fire caused by high potential wires in contact with same.

March 30–31, about midnight, 11 Revere street; slight fire due to cross between high and low potential wires outside of building, high potential current entering building over secondary wiring of same.

April 1, about 11 P.M., 617 Washington street; as result of improper operation of arc-lamp, coils of same became overheated and insulation on leading-in wire was ignited; damage confined to lamp, insulation of wire and scorching of ceiling.

April 3, 6.16 P.M., Box 16, 7 Friend street, corner Union street; a portion of the coils of rheostat used in connection with an elevator motor were left in circuit and became overheated. Trouble continued until opening of switch by fireman.

April 6, 1.40 A.M., rear of 848 Beacon street; tree fire caused by pole carrying high potential wires breaking and falling into the tree.

April 9, 10.01 A.M., Box 37, 131 State street; fire in basement apparently caused by short circuit on a flexible cable for a drop light, short circuit occurring where insulation on cable was frayed off by being hung over a metal hook.

April 12, 10.28 P.M., Box 62, Old Park Square Station; slight fire caused by grounding of current from high potential wires due to water leaking through defective roof.

April 12, 1.05 P.M., Engine 25 and Ladder 8 called on still alarm, 198 Milk street; fire on fourth floor of building; motor was permitted to run dry; babbit metal was melted out of bearings, thereby permitting armature to come in contact with pole pieces, short circuit resulting with consequent slight fire.

April 13, 2 P.M., Box 53; slight burn-out in electric-light main of the Edison Electric Illuminating Company, Washington street, at Boylston street, where excavations had been made for subway.

April 17, 6.23 P.M., Box 449, Pier 6, Charlestown Navy Yard; slight fire due to combustible material being left in contact with electric heater.

April 21, 1.30 A.M., 15–19 School street; Engine 4 and Chemical 1 called on still alarm; short circuit in low potential underground service of the Edison Electric Illuminating Company entering this building.

April 20, about 6.55 P.M., Dover-street station of the Boston Elevated Railway Company; short circuit between third rail of system and metal work of structure; damage slight.

May 15, shortly after 1.30 P.M., Hotel Rexford, Bulfinch street; Engine 4 and Chemical 1 called on still alarm; slight fire in basement room containing elevator machinery; strand of metal shipper cable broke and came in contact with pole changing switch; as a result of short circuit resulting thereby oily waste on floor was ignited; beyond the burning of waste and charring of insulation on wires for a few inches no damage.

May 20, 1.55 A.M., Box 53, 739 Washington street; an electric flatiron, accidentally left in circuit, ignited table on which it stood.

May 24, at 12.05 A.M., corner Fifth and C streets; tree fire caused by high potential wire coming in contact with tree limb.

June 9, 7.45 A.M., Box 51, 48 and 50 Pearl street; fire in basement at gas meter, lead connections at meter melted off and gas ignited as result of electric current entering building over gas main.

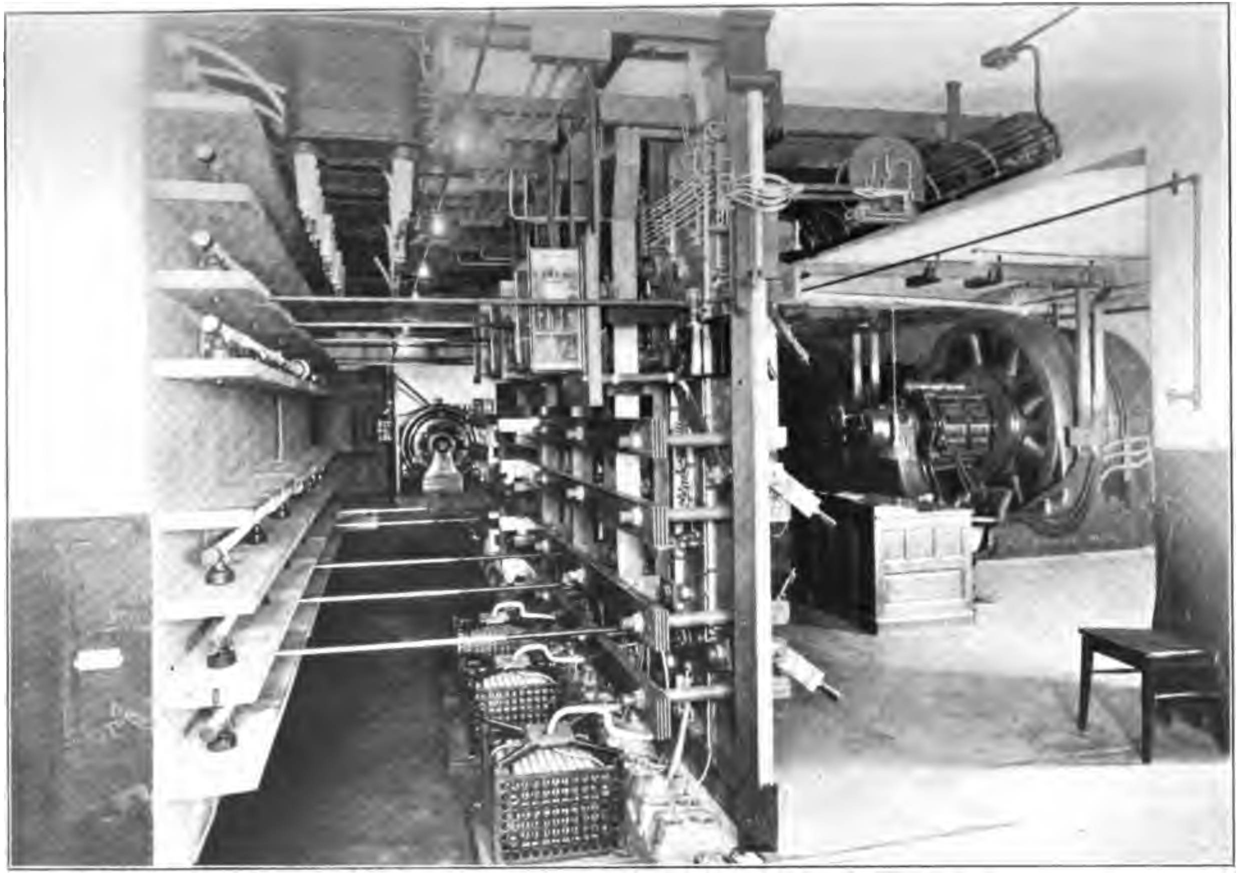

Plate No. 7. — 11th Station Edison Electric Illuminating Company, showing rear of switchboard.

June 22, Dover street, corner Albany street; iron pole electrically charged; current derived from trolley wire, insulators in supporting span wire being defective.

June 26, about 3 P.M., Chestnut Hill avenue, near Beacon street; iron terminal pole, belonging to the Boston Elevated Railway Company, struck by lightning, causing burn-out of two of the feeders of said company and partial destruction of the two pipes containing said cables.

July 1, 3 P.M., Box 53, corner Boylston and Washington streets; short circuit in coupling box of a set of electric mains; damage confined to the mains and slight burning of timbers in service during subway construction.

July 10 (P.M.), Essex place, on rear wall of building corner Lincoln and Tufts streets; burn-out in switchbox; Engine 7 called on still alarm; no damage other than to box.

July 14, 11.37 P.M., Box 89, corner Dartmouth and Boylston streets, New Old South Church; break-down in insulation occurred back of insulating joint; hole melted in gas pipe, gas ignited and fire communicated to surrounding woodwork; insurance loss, $4,080.

July 19, 7.53 P.M., Box 48, South Terminal Station; short circuit in elevator cable; fire department unnecessarily called.

July 22, 9.50 A.M., corner Cambridge and Charles streets; smoke discovered issuing from fire-alarm box, also from manhole of the New England Telephone and Telegraph Company in street; source of same found to be burn-out in underground electric mains.

July 20, 7.05 P.M., Box 46, building 60 and 62 Congress street, corner Water; fire, first floor; insurance loss, $652.94.

August 5, 12 M., Box 35, 55 Tremont street; mechanics at work grounded one pole of a heavy set of mains in boiler-room; beyond injury to conductor and the insulation of same no damage.

August 8, 5 P.M., Revere House, Bowdoin square; slight fire in dining-room caused by an overheated resistance, used as a speed regulator for a small fan motor; no damage except to fan.

September 3, A.M., Castle Island Bridge; break-down in insulation of series arc-wire with the resulting burning and charring of bridge planking and woodwork in immediate vicinity.

September 4, 4.16 A.M., Box 463, 5 Hamilton place, Charlestown; break-down in insulation of a high potential arc-light circuit at point where an arc-lamp was suspended from a bracket attached to wooden building caused fire to start which burned through side of building and did considerable damage on the inside of same before fire was extinguished; rain storm in progress at the time; insurance loss, $300.

September 6, 11.32 A.M., Box 46, 17 and 19 Pearl street; slight fire and explosion of gas in basement beneath sidewalk.

September 15 (A.M.), corner Washington and Court streets; slight fire in closet, second floor, up through which electric lighting wires run enclosed in a wooden box or shaft.

September 16, 7.08 P.M., 169 Tremont street; electrical trouble at cut-out in basement caused by plug fuse loosening from cut-out, arcing sufficient to destroy cut-out; no other damage.

September 26, Tremont Building, 6.23 P.M., Box 35, corner Tremont and Beacon streets; slight fire in elevator well caused by short circuit in elevator cable feeding three incandescents in car; insurance loss $489, mainly due to smoke damage.

October 20, 10.20 A.M., Box 218, elevated structure corner Washington and Palmer streets; break-down in insulation of feed cable, same coming in contact with carrying rail and woodwork of structure; damage confined to cable, rail and the burning and charring of inside of ties.

November 1, 7.20 P.M., Box 13, 10 Mechanic street; fire started in vicinity of 1½ horse-power motor; insurance loss, $404.37.

November 4, notification received at 9.42 A.M., Summer street, opposite No. 42; iron trolley pole electrically charged, due to break-down in insulator.

November 17, 3.15 A.M., Box 228, Dimock street; electric flatiron left on a wooden ironing board or shelf, no current being on wiring of room at the time; current turned on wiring about four hours before fire was discovered.

November 21, 9.30 A.M., Washington street, opposite Palmer street; explosion in manhole; no damage except to manhole and contents and inconvenience to customers supplied with current from transformer which burned out.

November 28, about 2.15 P.M., 421 Tremont street; slight fire, third floor, dueto grounding of wiring as result of water leak.

November 29, 7.35 P.M., Box 45, 27 Matthews street; break-down in insulation at series arc-switch on outside wall of building; damage confined to switch and slight charring of a sign.

November 27, 8.54 P.M., Box 154, M street, corner Eighth street, South Boston; fire in top part of mast of DeForest

Wireless Telegraph Company; fire confined to the mast and attachments thereto. Temporary paralysis of system caused thereby.

December 3, about 6.30 A.M., Congress street, corner A; arcing and flashing due to high potential arc-wire coming in contact with guy-wire.

December 3, about 9.30 A.M., Dorchester avenue, near the Convalescent Home; tree fire caused by limb of tree breaking and coming in contact with high potential arc-light wire.

December 7, about 5 P.M., Washington street, near Water street; burn-out in underground electric mains melted hole in 2-inch gas pipe, gas ignited and woodwork of subway excavation slightly charred and damaged before fire was extinguished.

December 21, 7.47 P.M., Box 433, Chelsea bridge; grounding of high potential arc-wire during heavy rain storm caused wire to burn off; no damage to bridge.

December 21, 7.45 A.M., Malden bridge; current grounded from wires of the Boston Elevated Railway Company beneath bridge causing slight fire which was put out by drawtenders; temporary repairs were made by employees of the Boston Elevated Railway Company.

At 5.25 P.M., same day, trouble reoccurred, and while employees of the Bridge Department were extinguishing same, Fire Department was called by an alarm from Box 454; damage confined to wires of the Boston Elevated Railway Company and to the burning and charring of woodwork of bridge.

December 28, 4.36 P.M., automatic alarm from Box 178, 83–87 Summer street; slight fire on third floor; temporary wiring installed without permit became overheated at a point where a hooked joint was made between the ends of two wires and insulation of wire was ignited; damage confined to the burning of insulation of wire for a short distance, and scorching of woodwork.

December 12, about 5 P.M., Craigie's bridge; boom of a lighter which was passing through draw swung over to one side and chain became entangled with arm supporting trolley wire, causing two or three hangers on trolley wire to break away and grounding of circuit.

January 24, 1.03 A.M., Box 463, 5 Hamilton court, Charlestown; break-down in insulation of a high potential arc-light circuit at a point where arc-lamp was suspended from an iron bracket attached to a wooden stable causing a fire to start which burned through side of building to inside of same; insurance loss, $250.

ACCIDENTS TO PERSONS DUE TO ELECTRICITY.

February 17, 1905, W. J. Sullivan, an employee of the Boston Elevated Railway Company, received burns to wrist and arm as result of short circuit, caused by chisel, with which work was being done, slipping and making connection between live wire and grounded iron pipe.

March 14, about 11.30 A.M., Gustave Bohm, employed by A. & J. M. Anderson Company, while at work at the second station of the Edison Electric Illuminating Company, Hawkins street, received a shock of electricity which caused his death.

March 28, about 5.15 P.M., Vincent Dugan, an employee of the Boston Elevated Railway Company, while soldering a ground wire, caused short circuit, as result of which he was slightly burned.

May 17, 10 A.M., police officer Charles W. Hoisington opened police box No. 21 on Hampden street, near the corner of Norfolk avenue. Upon removing telephone receiver from hook and placing same to his ear, he received a severe shock which knocked him into the street. He also sustained several burns on inside of left hand, in which hand he had held the telephone receiver. Investigation showed that a cross had occurred between police signal cable and high potential electric light wire at some distance from point where accident occurred.

May 30, fireman Richard H. Webber, while at work at a fire at No. 2205 Washington street, for which an alarm from Box 218 was given at 7.56 P.M., came in contact with live wire in basement, receiving shocks thereby; injuries slight.

June 20, about 3 P.M., Frank Burns, an employee of the Boston Elevated Railway Company, while painting feeders, was severely burned about the face and both hands, as result of short circuit caused between one of the feeders and elevated structure near the corner of Atlantic avenue and State street.

July 3, about 2 P.M., Mr. Frank Collins, while about to draw a glass of soda at No. 3345 Washington street, received severe shocks, also received slight burns to his left arm, which came in contact with electric fan.

July 7, about 5.45 A.M., near corner Castle and Washington streets, Oscar Osborne, while at work on the elevated structure, made a short circuit between the third rail and an air-pipe connecting the signal at that point, receiving a shock and severe burns to face and hands. He was thrown to the ground below, receiving wounds on face and compound fracture of both legs.

July 28, about 10.30 A.M., James Wilson, Jr., a lineman in the employ of the New England Telephone and Telegraph Company, while at work on wires at the corner of Blue Hill avenue and Seaver street received shock by coming in contact with high potential combination wire and fell to the ground; death resulted from fall.

August 18, about 10.30 A. M., Thomas R. Rawson, an employee of a wiring contractor, while at work in the Hawkins street or second station of the Edison Electric Illuminating Company, came in contact with live metal of a 6,900 volt circuit on switchboard. Mr. Rawson was unconscious for several minutes after receiving shock, and only external evidence of injury was a slight burn on one hand.

August 28, about 10.50 A.M., Thomas R. Rawson, referred to in item above, while working on switchboard and at same portion of board as at time of previous accident, received severe shock and burns from current of 6,900 volt circuit and was thrown from step ladder upon which he was working to floor, from which he was removed in an unconscious condition to the Relief Hospital. In addition to severe shock and injury to head, due to fall, Rawson received very deep and severe burns on right forearm and left shoulder.

September 4, between 11 and 12 P.M., opposite No. 239 Warren street, two passers-by received electric shocks due to trolley pole being electrically charged.

October 3, about 10.30 A.M., Anthony Phorskey, fourteen years of age, came in contact with high potential alternating current circuit. He received severe burns to the right hand, slight burns to two fingers of left hand and fell to the ground, a distance of twenty or twenty-five feet, receiving injuries thereby.

October 12, about 4.55 P.M., Patrick J. Crowley fell from rear platform of fourth car of elevated train. In addition to injuries received by being pushed or dragged along by the truck of the car in the rear, he received several burns to the hands and one foot by coming in contact with the third rail of system.

December 1, about 10.45 A.M., Patrick Manning and Richard King, while at work on a derrick being erected at the corner of Midway and Richard streets, South Boston, received severe shocks as result of derrick guys coming in contact with wires of a high potential alternating circuit.

WORK OF INTERIOR DIVISION.

Inspection of Interior Wiring of Buildings, Showing Work Performed for Five Years.

	1901.	1902.	1903.	1904.	1905.
Notices of new work received	9,107	10,272	8,590	7,983	9,317
Number of buildings, wiring completely examined	692	496	487	524	590
Incandescent lights examined	422,182	394,234	330,050	611,778	686,231
Arc-lights examined	12,882	10,882	2,716	5,738	6,028
Motors examined	3,275	3,006	2,465	2,966	3,006
Total H.P. of motors examined	16,444	12,531	11,151	11,790	11,667
Defects reported	2,349	1,810	1,274	1,073	1,289
Defects corrected	1,928	1,165	988	673	905
Services examined	1,654	1,174	819	571	595
Inspections made	23,111	23,962	19,635	19,224	23,588
Isolated plants in this city	281	283	274	274	276
Isolated plants inspected	34	24	32	14	4

Number and Classification of Fires, etc., due to Electrical Causes.

	1901.	1902.	1903.	1904.	1905.
Fires on outside of buildings	6	3	2	5	4
Fires in the interior of buildings	22	18	32	23	20
Fires on roofs of buildings	2	....	....	....	....
Fire on poles	10	3	2	5	3
Bridge fires	1	1	3	8	4
Burn-outs	9	....	....	....	....
Deaths	6	2	....	3	2
Injuries	21	13	7	15	17
Manhole explosions	5	5	1	3	3
Miscellaneous	14	12	12	40	25

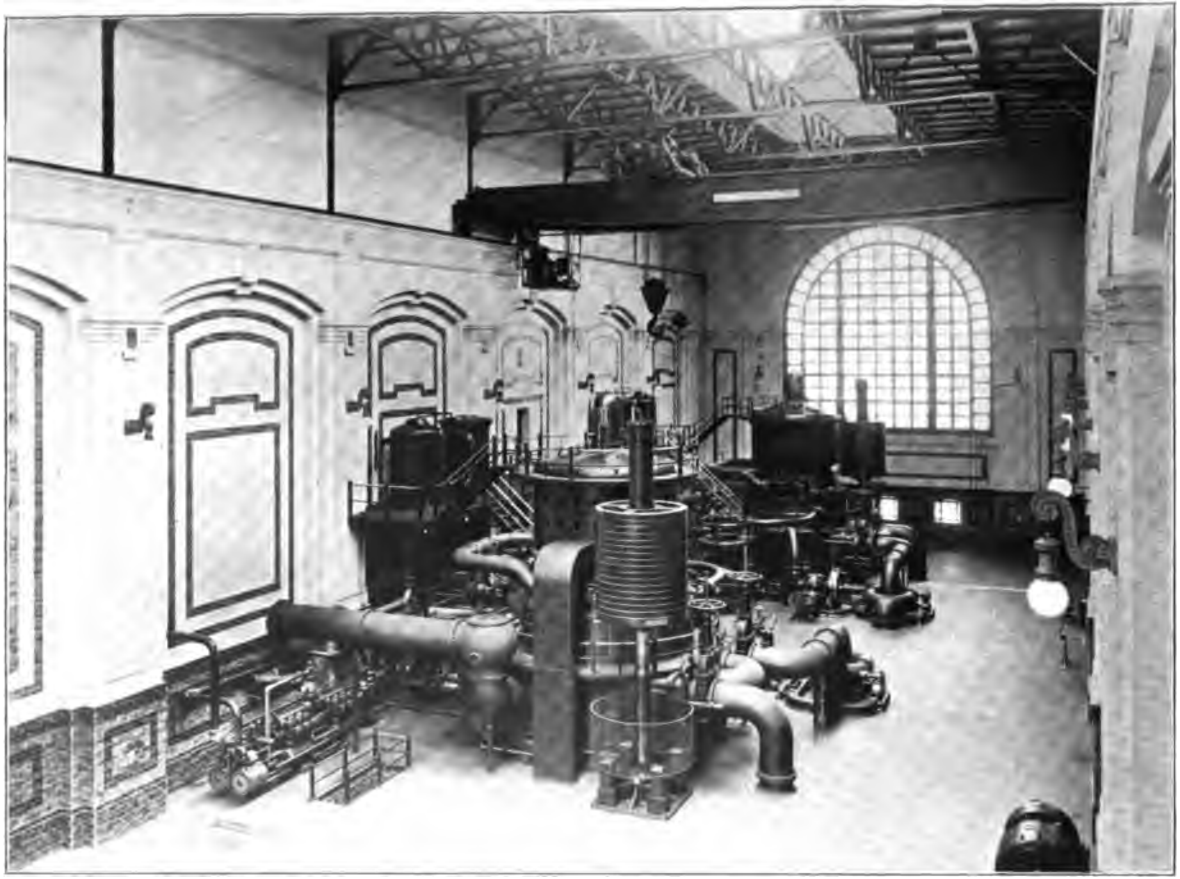

Plate No. 8. — L-street Turbo-Generator Station of the Edison Electric Illuminating Company.

DESCRIPTION OF PLATES.

Plate No. 1 is a view of Harrison avenue south from Dover street, showing the poles and wires as the avenue appeared before these were ordered placed underground by the Commissioner of Wires.

Plate No. 2 is a duplicate view of the above as the street appears to-day, all poles and wires removed.

Plate No. 3 is a view taken on Boylston street just west of Washington street, and gives an idea of some of the changes made necessary in constructing the Washington-street subway; all the tubes seen in the photograph have been or will be removed before the work is completed.

Plate No. 4 is a view taken at State and Washington streets in 1894, giving an idea of the method then employed for drawing in cables into the underground ducts.

Plate No. 5 shows the latest method of drawing cables into the underground ducts; the cables are hauled to the location on the truck shown, unloaded, and then drawn into place in the ducts by the same power, and the empty reels hauled back to the yard all in one trip.

Plate No. 6, eleventh station, Edison Electric Illuminating Company, sub-basement, 59 Tremont street.

Plate No. 7, eleventh station, Edison Electric Illuminating Company, showing rear of switchboard.

Plate No. 8, L-street turbo-generator station of the Edison Electric Illuminating Company.

LIST OF WIRE DEPARTMENT EMPLOYEES JANUARY 31, 1906.

No.	Occupation.	Salary Per Annum.
1	Commissioner	$5,000 00
1	Chief Inspector and Chief Electrician	2,600 00
1	Chief Inspector	2,000 00
1	Chief Clerk	1,500 00
1	Draughtsman	1,400 00
1	Engineer	1,400 00
10 5	Inspectors	1,400 00
1 2	Inspectors	1,300 00
0 ~~10~~	Inspectors	1,100 00
16 ~~7~~	Inspectors	1,000 00
1	Clerk	1,000 00
~~8~~	~~Inspectors~~	~~900 00~~
1	Inspector	800 00
1	Stenographer	700 00
1	Deputy Inspector	500 00
1	Telephone Operator	500 00
~~43~~ 46		

STATEMENT OF DEPARTMENT APPROPRIATION AND EXPENDITURES FROM FEBRUARY 1, 1905, TO JANUARY 31, 1906, INCLUSIVE.

Appropriation	$62,000 00
Expenditures:	
Office, including salary of Commissioner	$9,411 52
Interior Division	21,075 90
Exterior Division	27,176 54
Telephones	521 84
Photography and Draughting	148 34
Laboratory	23 92
Total amount of expenditures	$58,358 06
Balance unexpended	3,641 94
	$62,000 00

LIST OF PROPERTY OF THE WIRE DEPARTMENT.

1 High Potential Testing Apparatus.
1 Standard Resistance Coil with Wheatstone Bridge.
1 Transformer.
1 Test Board, capacity 220 volts and 300 amperes.
1 Auxiliary Test Board, capacity 220 volts and 150 amperes.
1 Auxiliary Test Board, capacity 220 volts and 75 amperes.
1 300-volt Weston Direct Reading Voltmeter, No. 3,317.
1 15-volt Weston Direct Reading Voltmeter, No. 4,747.
1 150-ampere Weston Direct Reading Ammeter, No. 926.
1 1,500-volt Weston Direct Reading Voltmeter, No. 3,438.
1 1,500 mil-ampere Weston Direct Reading Mil-Ammeter, No. 2,433.
1 15-ampere Weston Di-Ammeter, No. 8,426.
1 300-volt Weston Direct Reading Voltmeter, No. 6,020.
1 500-ampere Weston Direct Reading Ammeter, No. 2,428.
1 300-volt Weston Portable Voltmeter, No. 15,459.
1 300-volt Weston Portable Voltmeter, No. 15,455.
1 300-volt Weston Portable Voltmeter, No. 15,456.
1 Electrostatic Voltmeter, No. 70,647.
1 15-ampere I. C. Ammeter, No. 21,507.
1 200-ampere T. & H. Portable Ammeter, No. 29,421.
1 300-volt Standard Portable Alternating and Direct Current Voltmeter, No. 1,044.
1 Reflecting Galvanometer Condenser, Telescope, Scales, etc.
1 Bichloride of Silver Battery, 150-cell.

4 Bichloride of Silver Batteries, each 60-cell.
1 Queen Testing Set, No. 389.
1 50-ampere Weston Direct Reading Ammeter, No. 2,381.
1 Set Standard Resistance Coils.
1 Generator, 50,000 ohms.
1 Discharge Key.
1 Reversing Key.
1 Lamp-stand and Scale.
1 Shunt Coil.
1 Set Double Connector Posts.
2 Horses.
2 Express Wagons.
3 Business Wagons.
1 Sleigh.
4 Sets of Harness.
4 Robes.
9 Blankets.
1 Goddard Buggy.
1 Camera complete.
Miscellaneous tools used in connection with overhead construction.
Draughting Instruments.

ANNUAL REPORT

OF THE

WIRE DEPARTMENT

FOR THE

YEAR 1906

BOSTON
MUNICIPAL PRINTING OFFICE
1907

1 Dec. 1910
DEPARTMENT OF ARCHITECTURE,
HARVARD UNIVERSITY.
Gift of
The Department
782

OFFICE OF THE COMMISSIONER OF WIRES,
11 WAREHAM STREET, BOSTON, February 1, 1907.

HON. JOHN F. FITZGERALD,
Mayor of the City of Boston:

SIR, — In compliance with chapter 3, section 24 of the Revised Ordinances of 1898, I herewith submit the annual report of the Wire Department, showing the appropriation, expenditure and work performed from February 1, 1906, to February 1, 1907.

In presenting this report, I give a resumé of some of the work done by this department under chapter 454, Acts of 1894, and chapter 249, Acts of 1898, both applying to the removal of poles and overhead wires on the streets in this city, also of work to be done in the year ending February 1, 1908.

Under chapter 454, Acts of 1894, the streets included in the district bounded by Dover and Berkeley streets, Charles river, Boston harbor and Fort Point channel have been practically cleared of overhead wires and poles.

Under chapter 249, Acts of 1898, which calls for the clearance of two miles of street each year up to January 1, 1910, would say that the following named streets have been prescribed and that they are practically free of poles and overhead wires, with the exception of those which are exempted by the two acts mentioned and those in the streets to be cleared during the present year.

STREETS PRESCRIBED.

Harrison avenue, from Dover street to Northampton street; Dover street, from Albany street to Tremont street; Wareham street, from Albany street, extending to and ending at the easterly side of Malden street; Concord street, from Albany street to the easterly side of Shawmut avenue; Northampton street, from Albany street to the easterly side of Shawmut avenue; Northampton street, from Shawmut avenue to Columbus avenue; Columbus avenue, from Northampton street to Massachusetts avenue; Massachusetts avenue, from Columbus avenue to Beacon street; Washington street, from Dover street to Northampton street; Washington street, from Northampton street to Dudley street; Tremont street, from Dover street to Cottage place; Broadway from Dorchester avenue to Dorchester street; Dorchester street, from Broadway to Andrews square; Dudley street, from Washington street to Hampden street; Washington street, between Dudley and Keyes; Maverick square, from Sumner street; Meridian street, to Meridian street bridge and Central square; Main street, Charlestown, from Water street to Charles street, including Hancock, Thompson and City squares; Albany street, from Dover to Hampden street; Hampden street, from Albany to Dudley street; Dudley street, from Hampden to Magnolia street; Main street, Charlestown, from Charles street to Somerville line; Dudley street from Magnolia to Columbia road; Congress street, from Bridge to A street; A street, from First street to Congress street; Tremont street and Columbus avenue from Cottage place to Old Heath street.

On the above list, would say that, starting from Charles street to Somerville line, and including Tremont street and Columbus avenue from Cottage Place to Old Heath street, the streets included are in the prescribed district for the year 1907, and, as they have to be advertised previous to February 1, 1907, they have been included in the streets under chapter 249, Acts of 1898, from which poles and wires are to be removed.

In this connection, would say that, as the rights given to this department by chapter 249, Acts of 1898, which refers to prescribing two miles of street each year, expires January 1, 1910, I have considered it proper, in consideration of the fact that it may take a year or two to have a new act passed, to call same to your attention.

The places licensed under chapter 450, Acts of 1904, have been inspected as required by law. The number has increased over previous years.

In regard to the district prescribed for the year 1906, you are advised that, taking into consideration the early winter and its continuance, the companies have performed good service relative to the removal of overhead wires and poles.

The use of electricity in this city in all its branches has increased during the year, and from the present outlook it will be greatly increased during the year ending February 1, 1908.

As noted in my last report, your attention is called to the necessity of having a fireproof vault built in which to store the plans and other records of this department as it is deemed very essential that these should be suitably protected.

Details of work performed by the department will be found under their appropriate headings.

Yours respectfully,

PATRICK J KENNEDY,
Commissioner of Wires.

EXTERIOR DIVISION.

The prescribed district for 1906 was Albany street, Hampden street, and Dudley street from the centre line of Dover street to Magnolia street, a total distance of ten thousand five hundred and sixty (10,560) feet, the distance authorized by law, namely, two miles per year.

Standing on Albany street, between Dover street and Sheridan square, were one hundred and thirty-nine poles, belonging to the following companies: American Telephone and Telegraph Company, forty-nine (49); The Edison Electric Illuminating Company, two (2); The New England Telephone and Telegraph Company, forty-eight (48), and the Boston Elevated Railway Company, forty (40). On Hampden street between Sheridan square and Dudley street there were standing twenty-two (22) poles of the New England Telephone and Telegraph Company. On Dudley street between Hampden street and Magnolia street there were standing thirty-three (33) poles of the New England Telephone and Telegraph Company and thirty-one (31) poles of the Edison Electric Illuminating Company.

The one hundred and thirty-nine poles on Albany street supported about five hundred and thirty-eight thousand (538,000) feet of wire, owned by the American Telephone and Telegraph Company, the Boston Automatic Fire Alarm Company, the Boston Fire Alarm Department, the Edison Electric Illuminating Company, the New England Telephone and Telegraph Company, the Postal Telegraph-Cable Company and the Boston Elevated Railway Company.

The first named company (the American Telephone and Telegraph Company) owning about one hundred and ninety-seven thousand (197,000) feet of the above amount, and this, together with the forty-nine (49) poles belonging to that company, being long distance lines, will remain on the street, being exempt from the present underground law.

The twenty-two (22) poles of the New England Telephone and Telegraph Company on Hampden street were supporting about ninety-three thousand (93,000) feet of wire and about three hundred (300) feet of cable, owned by the following companies: the New England Telephone and Telegraph Company, the Boston Police Signal Service, the Boston Fire

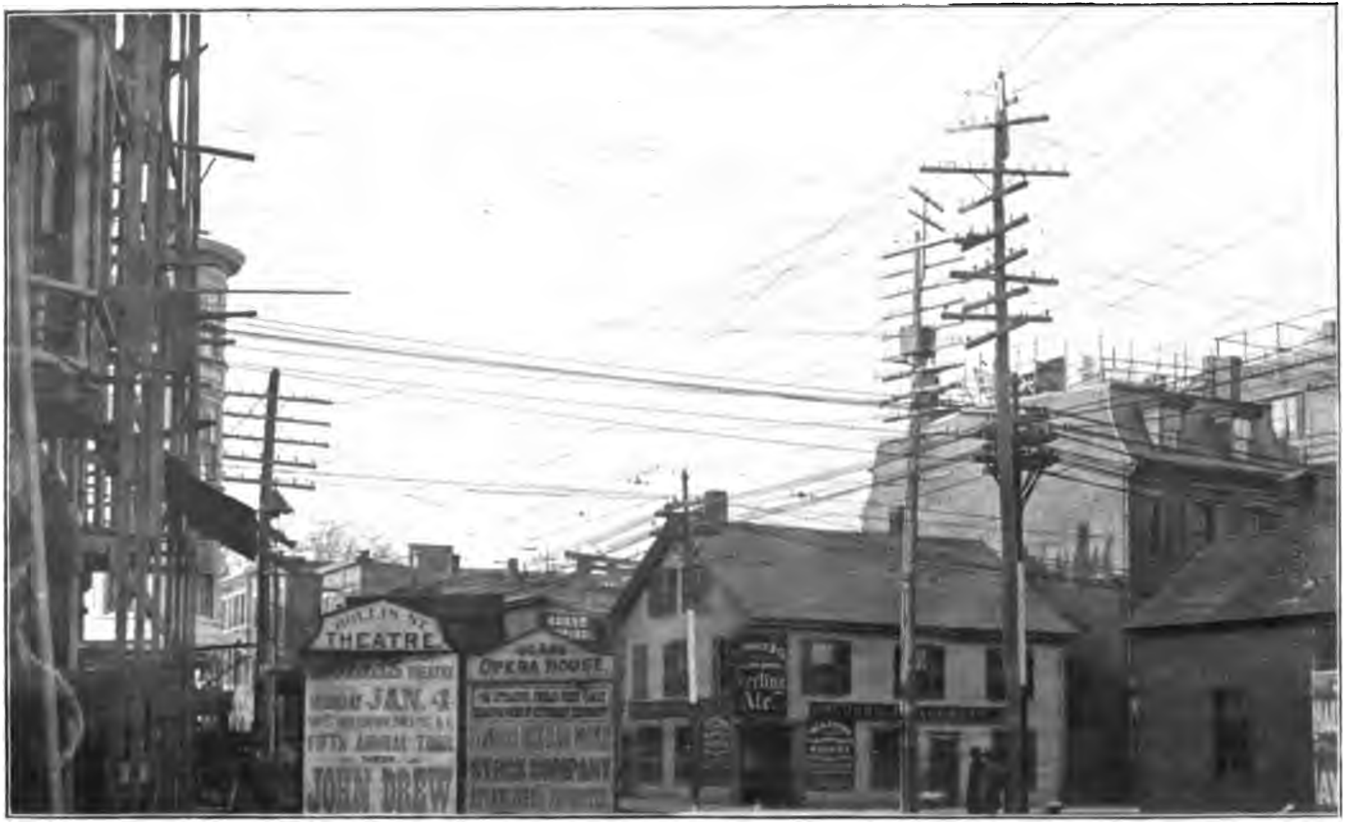

Plate No. 1. — Corner Northampton street and Harrison avenue, before wires were removed

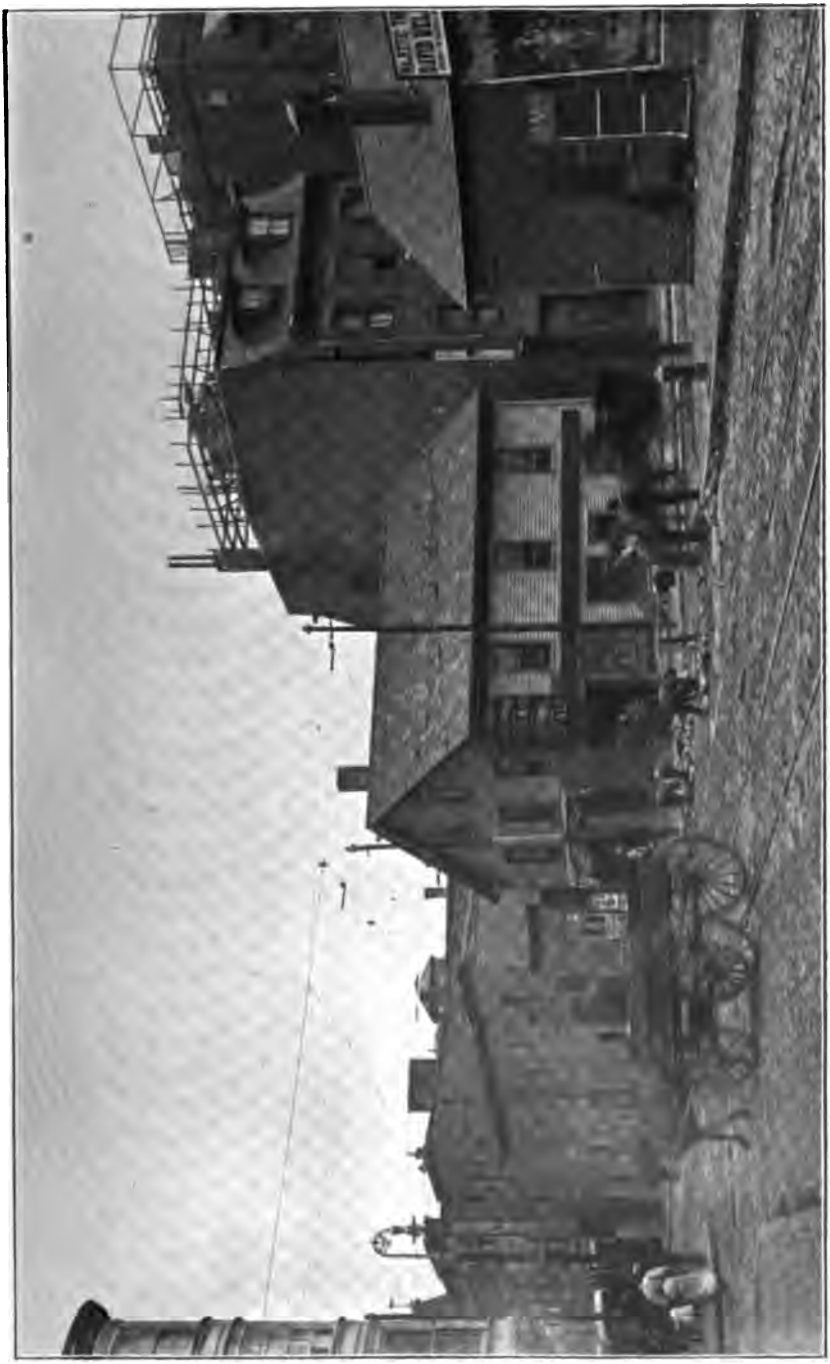

Plate No. 2. — Corner Northampton street ard Harrison avenue, showing conditions after wires were removed.

Alarm Department, the Edison Electric Illuminating Company, the Boston Elevated Railway Company and F. L. Rich.

The sixty-four (64) poles of the Edison Electric Illuminating Company and the New England Telephone and Telegraph Company standing on Dudley street, between Hampden and Magnolia streets were supporting about one hundred and twelve thousand (112,000) feet of wire and this was owned by the following companies: the Boston Police Signal Service, the Boston Fire Alarm Department, the Edison Electric Illuminating Company, the New England Telephone and Telegraph Company, the West End Street Railway Company. There is also some cable belonging to the Postal Telegraph-Cable Company crossing Dudley street at Cottage street. The above figures do not include the trolley and span wires of the Boston Elevated Railway Company.

We have received over ten thousand six hundred (10,600) notices of new work, and all of these require special inspection so that much of the Inspectors' time has been taken up in this work outside of their regular routine work in their districts; careful attention is being given to all new construction and also to defective work and the correction of the same, the selection of new poles locations, setting, resetting and removal of poles. Where it is found necessary to erect derricks and put up derrick guy wires special care is used by the inspectors, and during the year we have had no report of any accident due to electric wires in connection with this work. Where buildings are moved through the streets on which wires are located, notice is sent to this department and a special inspection is made of this work.

Owing to the crowded condition of many of our streets, we find that great care must be taken in selecting new underground locations, so that all the various companies may have an equal chance in all the streets for their wires and conduits.

The underground construction is receiving the usual attention and during the year there has been considerable increase in this kind of work as will be seen in the detail report.

The work on the line of the Washington street subway is well in hand, and in fact the greater portion of it is completed and the street paved, the work now being confined to that portion below Milk street. With the exception of a little at some of the proposed stations, this work has been difficult, and though the street is very much crowded in some places we believe that all companies have been amply provided for.

It will be noticed in the tables that the Edison Electric Illuminating Company have installed but few so-called distribution boxes, but they have installed in their place a number of the accessible distribution boxes in their manholes. This was described in last year's report. Some fifty-two of these have been placed this year.

Table showing the overhead work from February 1, 1906, to January 31, 1907, inclusive:

Permits granted by the Board of Aldermen to set poles	60
Number of poles included in the above orders	117
Permits granted by the Board of Aldermen to remove poles	47
Number of poles included in the above orders	180
Number of streets or avenues included in all the above orders	73
Number of new poles set in new locations	130
Number of poles removed	98
Number of poles re-set	702
Number of new pole locations selected	478
Number of poles now standing	15,140
Amount of wire removed by the Wire Department (in feet)	381,750
Fixtures and outriggers removed by the Wire Department	32
Defect notices sent out	1,554
Number of defects included in these notices	3,513
Defects reported corrected	3,623
Notices of new work and special inspections	10,642
Amount of wire removed by owners, as reported (in feet)	3,773,420

Orders granted by the Board of Aldermen which come under the jurisdiction of this department, as they pertain in one way or another to the overhead or underground wires, but not included in above table:

Police signal post locations	14
Fire-alarm post and test box locations	15
Extension of time for erection or removal of poles	2
Attachments of one company's wires to poles of another	10
To cross streets with overhead wires	8
To cross streets with underground wires in conduits	3
Extension of street railway tracks, etc.	18
Erection of derricks, guys, etc.	20
Moving buildings, etc.	17
Making a total of	107

The following is a list of the companies and individuals doing underground work during the year 1906:

For Electric Light and Power Purposes.

Boston and Albany Railroad.
Boston Brewery.
Boston Elevated Railway Company.
Boston Consolidated Gas Company.
Charlestown Gas and Electric Company.
Edison Electric Illuminating Company.
H. A. Holder Company.
Quincy Market Cold Storage and Warehouse Company.
Walker Building Plant.
Weeks' Real Estate Trust.

For Telephone, Telegraph, Signalling and Other Purposes.

American District Telegraph Company.
Boston Auxiliary Fire Alarm Company.
Boston Low Tension Wire Association.
Fire Alarm Branch (Boston Fire Department).
Massachusetts Telephone and Telegraph Company.
New England Telephone and Telegraph Company.
Police Signal Service (Boston Police Department).
Postal Telegraph-Cable Company.
Western Union Telegraph Company.

The following companies have laid no new ducts but have drawn new cables into their old ducts:

Boston Automatic Fire Alarm Company.
Holmes Electric Protective Company.
Institutions Department (City of Boston).
Mutual District Messenger Company.

During the year just closed the various electric companies have opened one hundred and twenty-four different streets and avenues in the city proper and suburban districts for the purpose of building new conduits or enlarging their existing systems; sixty-eight of these were in the congested portion of the city, north of Dover and Berkeley streets, or the original underground district, while the remaining fifty-six were scattered throughout the rest of the city. The continued increase in the use of electric light and telephone, of course, make it necessary from year to year to extend and enlarge old duct lines so as to provide for additional cables, etc.

The electrical approvals of the department for opening the streets for underground electrical work have been increased by two hundred and seventy-five over last year, making a total of eighteen hundred and eighty-two for the year, and our underground inspectors have made over eight thousand three hundred inspections on these various street openings during the year.

The various companies have, as usual, provided for their distribution points in the new underground districts by establishing terminal poles at intervals along the lines, these terminals are located as follows :

The Boston Elevated Railway Company.

Dudley street, near Winslow street.
Dudley street, near Warren street.
Dudley street, near Vine street.
Dudley street, opposite Hampden street.
Dudley street, near Lewis place.
Dudley street, near Burrell street.
Dudley street, opposite Howard avenue.
Dudley street, opposite Magnolia street.
Blue Hill avenue, near Dudley street.
Hampden street, at Island street.
Harrison avenue, near Northampton street.
Warren street, near Zeigler street (L structure).
Northampton street, near Albany street.
Southampton street, near Albany street.
Warren street, near Kearsarge avenue.
Warren and Washington streets (L structure).
Washington and Springfield streets (L structure).
Washington and Waltham streets (L structure).
Washington and Malden streets (L structure).

The Edison Electric Illuminating Company.

Shawmut avenue, at Northampton street.
Shawmut avenue, at West Canton street.
Shawmut avenue, at Union Park street.
Zeigler and Washington streets.
Roxbury and Washington streets.
Oakland and Washington streets.
No. 4 Waltham street.
No. 170 Springfield street, near Tremont street.
Randolph street, near Albany street.
Malden street, near Albany street.
Massachusetts avenue, west of Albany street.
Massachusetts avenue, east of Albany street.
Newton street, near Albany street.
Dedham street, near Albany street.
No. 40 Randolph street.
E and Dresser streets.
Blue Hill avenue and Dudley street.

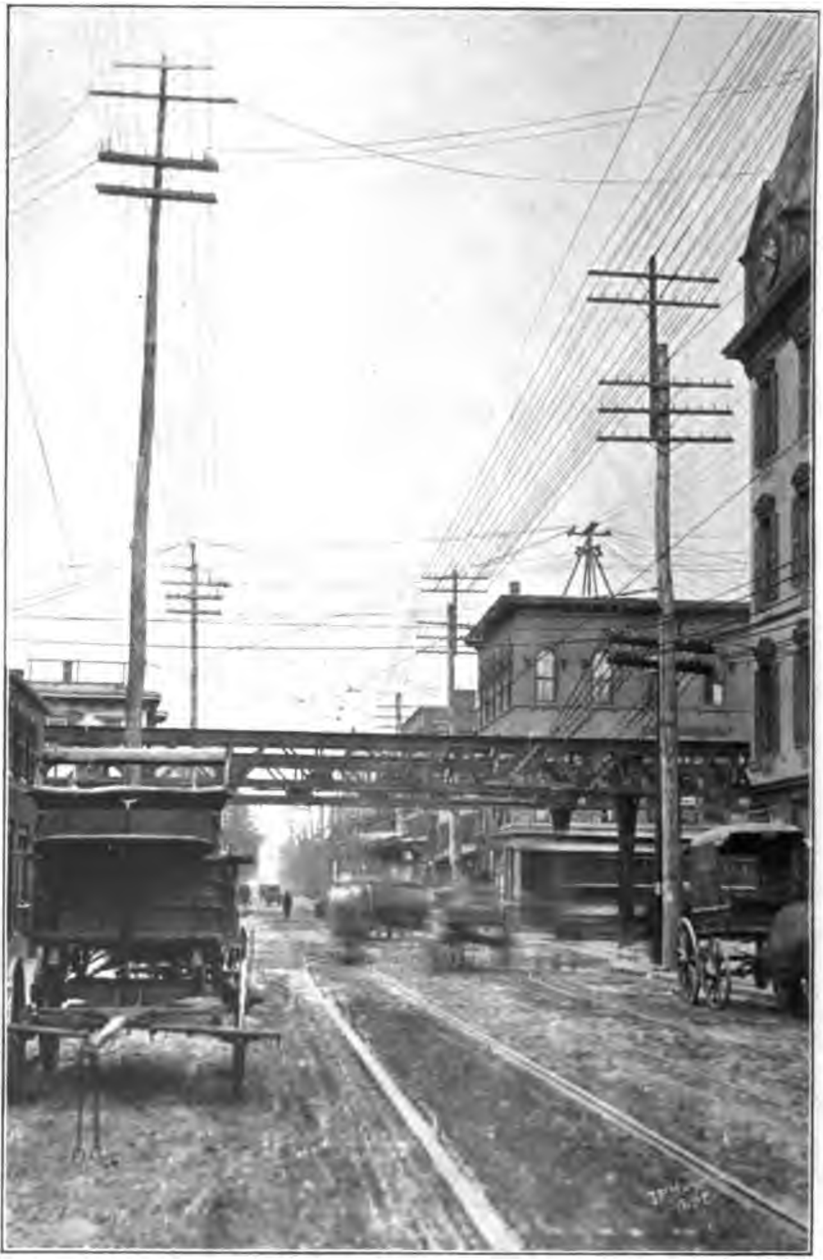

Plate No. 3. — Northampton street, east of Washington street, showing conditions before wires were removed.

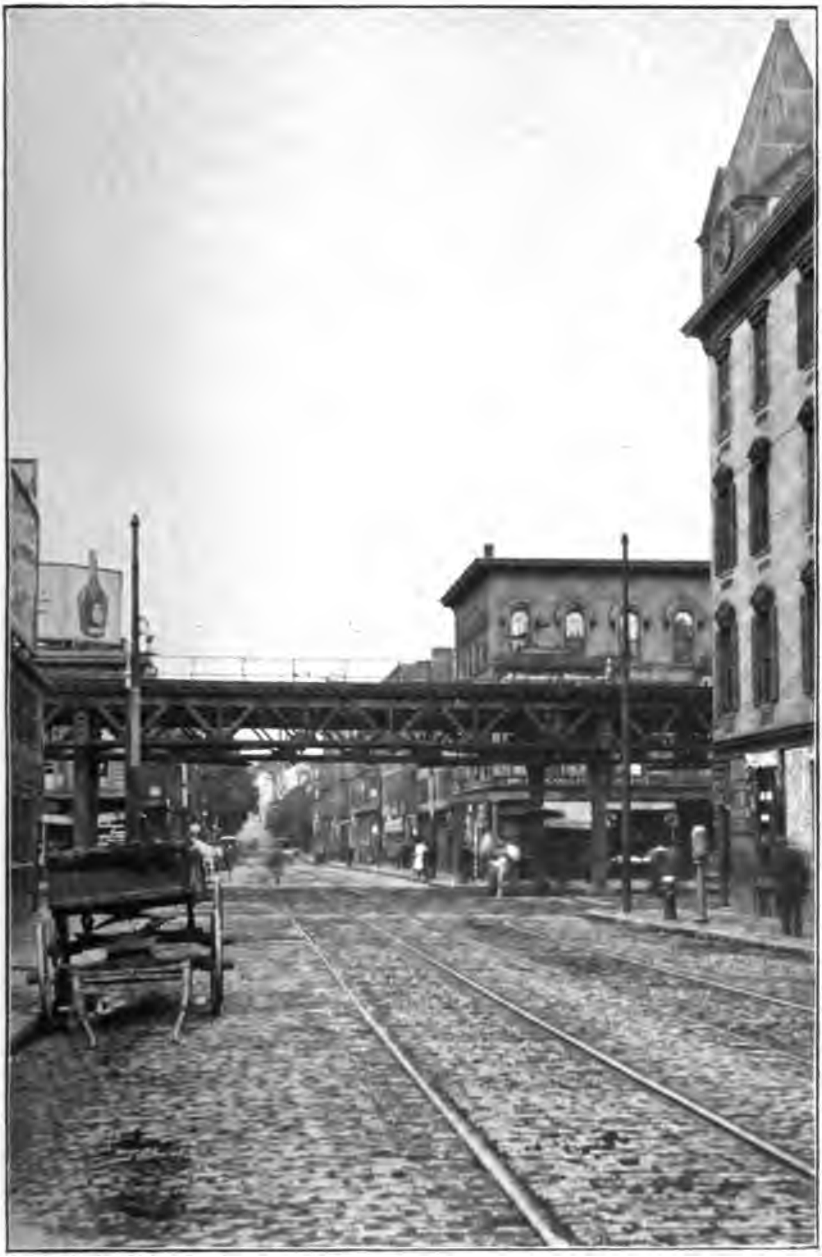

Plate No. 4. — Northampton street, east of Washington street, showing conditions after wires had been removed.

Mt. Pleasant avenue and Dudley street.
Burgess and Dudley streets.
No. 41 West First street.
Magnolia street, near Dudley street (two).
East Canton and Albany streets.
Eustis and Hampden streets.
George and Hampden streets.
Southampton street, near Albany street.
West Cottage street, near Dudley street.
East Cottage street, near Dudley street.
Magazine and Dudley streets.
Blue Hill avenue, near Dudley street.
Howard avenue, near Dudley street.
Washington and Williams streets.
Washington and Meehan streets.

New England Telephone and Telegraph Company.

Park and Vinson streets.
Falcon and Meridian streets.
Eagle and Meridian streets.
Eutaw and Meridian streets.
North Harvard street and Charles River bridge.
North Harvard street, at Soldiers Field.
Washington and Allston streets.
West Cottage street and Blue Hill avenue.
Commonwealth avenue and St. Mary street.
Commonwealth avenue and Chilmark street.
Commonwealth avenue and St. Paul street.
Bowdoin and Westville streets.
Arcadia and Montello streets.
Pleasant and Thornley streets.
Westville street and Russell place.
Geneva avenue and Westville street.
Opposite No. 433 Dudley street.
Private way off East Brookline street.
Walnut avenue and Dennison street.
Seaverns avenue and Maple place.
Seaverns avenue and Starr lane.
Bird street and Columbia road.
Palmer and Eustis streets.
Opposite No. 851 Albany street.
Geneva avenue and Blue Hill avenue.
West Fourth and E streets.
Albany and Yeoman streets.
Adams and Lyon streets.
Adams and Robinson streets.
Adams and Ellet streets.
Cambridge and Eleanor streets.
Cambridge street, at Allston Heights.
Talbot avenue and Peabody square.

Adams and Church streets.
Bowdoin street, near Quincy street.
Quincy street, at Bowdoin street.
George street, near Hampden street.
Eustis street, near Hampden street.
Norfolk avenue, near Hampden street.
Albany street, near Hampden street.
Opposite No. 55 Palmer street.
Southampton and Reading streets.
Southampton and Gerard streets.
Adams street, at Winter street.
Adams street, at East street.
Adams street, at Fox street.
Hilton street and Massachusetts avenue.
Humboldt avenue and Howland street.
Humboldt avenue and Laurel street.
Humboldt avenue, at Townsend street.
Humboldt avenue, at Bower street.
Humboldt avenue, at Waumbeck street.
Humboldt avenue, at Hollander street.
Humboldt avenue, at Wyoming street.
Humboldt avenue, at Crawford street.
Townsend street, at Humboldt avenue.
Howland street, at Humboldt avenue.
Massachusetts avenue, at Southampton street.
Blue Hill avenue, at Huckins street.
South and St. Marks streets.
Blue Hill avenue and Winthrop street.
Erie and Walcott streets.
Erie and Elmo streets.
Erie and Hewins streets.
Erie and Greenwood streets.
Erie and Seaver streets.
Washington street and Effley road.
Washington street and Lotus place.
Ruggles street and Rogers avenue.
Main and Caldwell streets.
East Cottage street, at New York, New Haven and Hartford Railroad.
Opposite No. 850 Huntington avenue.
Wyoming street, at Humboldt avenue.
Blue Hill avenue and Harvard street.
Neponset avenue and Chickatawbut street.
Alexander and Magnolia streets.
Harvard and Commonwealth avenues.
Lebanon and Magnolia streets.
Dorchester avenue, at pole No. 1429.
Eustis street, at Hampden street.
Washington and Keyes streets.
Washington and Greenwood streets.

Draper and Arcadia streets.
Corwin and Arcadia streets.
Dakota and Westville streets.
No. 3094 Washington street.
Main and Caldwell streets.
Washington and School streets.
West Cottage and Dudley streets.
Washington street, at Chauncy place, West Roxbury.
Washington street, at Albano street.
Washington street, at La Grange street.
Washington street, at Hemlock street.
Washington and Rockland streets.
Washington and Grove streets.
Washington and Kittredge streets.
Washington street and Metropolitan avenue.
Washington street, at Beech street.
Washington and Short streets.

Twelve of the regulation lamp and signal-box posts have been located and set by the Fire Alarm Branch of the Boston Fire Department during 1906, most of which have been connected to the manholes of the New England Telephone and Telegraph Company or their own underground conduits. They have also established one test box or post and connected the same with the underground system.

Twelve iron signal-box posts have been located and set by the Police Signal Service of the Boston Police Department, the same having been connected under ground to the manholes of the New England Telephone and Telegraph Company, and through these connecting with the underground system of the Police Department. They have also established and connected one test box.

No change has been reported in the general make-up of the Boston Low Tension Wire Association this year, and the Association consists of the Boston Automatic Fire Alarm Company, Boston District Messenger Company, Boston Electric Protective Company, Mixer Brothers, Mutual District Messenger Company, Holmes Electric Protective Company, Postal Telegraph-Cable Company, Stock Quotation Telegraph Company and United Telegram Company.

New conduits have been built during the past year in the following streets and avenues, the companies owning, with the number and style of ducts used in each case, being as follows:

Drawing-in System of the Edison Electric Illuminating Company.

Street.	From	To	No. of Ducts.	Type.
Albany	Dover	Hampden	12	Vit. clay
Albany	At East Concord		2	"
Arch	No. 111	Summer	10	"
Atlantic ave.	At Oliver		1	"
Atlantic ave.	At bridge		1	Iron
Atlantic ave.	At Central wharf		1	"
Berkeley	At St. James ave		1	"
Boylston	At No. 37			Manhole
Canton (East)	Mystic	Albany	2	Vit. clay
Causeway	At Washington		1	Iron
Causeway	At Medford		1	"
Central Wharf	At Atlantic ave.		1	"
Chadwick	At Hampden		4	Vit. clay
Charles	At Chambers		1	Iron
Chatham	Chatham row	E. E. Ill. Co. Station	10	Vit. clay
Chatham row	Chatham	State	10	"
Clarendon	At St. James ave		1	Iron
Clinton	At Blackstone		1	"
Columbus ave.	At Springfield		2	Vit. clay
Columbus ave.	At Yarmouth		1	Iron
Congress	At Dorchester ave.			Manhole
Congress	No. 55	Water	2	Iron
Davenport	No. 16	Columbus ave.	2	Vit. clay
Dover	At Shawmut ave.		3	Iron
Dudley	Hampden	Magnolia	8	Vit. clay
Eliot	At Pleasant		1	Iron
Essex	No. 13	No. 15	12	Vit. clay
First (West)	No. 41	Dorchester ave.	2	"
Half Moon	Hooper ave.	Magnolia	2	Wooden
Hampden	Albany	Dudley	8	Vit. clay
Hemenway	At Westland ave.		1	Iron
Hooper ave.	Magnolia	Half Moon	2	Wooden
Isabella	No. 22	Private way	1	Iron
Leverett	At Brighton		1	"
Magnolia	Lebanon	Half Moon	2	Fibre
Magnolia	Dudley	Lebanon	2	"
North	Merchants row	Blackstone	2	Vit. clay
Prescott	At Hampden			Manhole
St. Botolph	Fallon	West Newton	1	Iron
Shawmut ave.	At No. 146		1	"
Shawmut ave.	At West Canton		1	"
Springfield	Shawmut ave		2	Vit. clay
Tremont row	At Hanover		1	Iron
Tremont	At No. 171		1	"
Tremont	At Beacon		1	"
Tremont	No. 47	No. 55	2	Vit. clay
Tyler	No. 113	Oak	2	"
Washington	No. 3515			Manhole
Washington	Opposite Essex		18	Vit. clay
Washington	Across at Norfolk pl.		4	"
Washington	Across at Bromfield		8	"
Washington	Across at Summer		21	"
Washington	Across at Ordway pl.		4	"
Washington	Across at School		12	"
Washington	Across at Milk		21	"
Washington	No. 394	Bromfield	8	"
Washington	Bromfield	No. 417	20	"
Washington	At Water		12	"
Washington	Water	Williams Court	20	"
Washington	Opposite Bromfield	Water	8–12	"
Washington	Bromfield	Opposite Water	20	"
Washington	At No. 3574			Manhole
Westland ave.	No. 178	Hemenway	2	Vit. clay

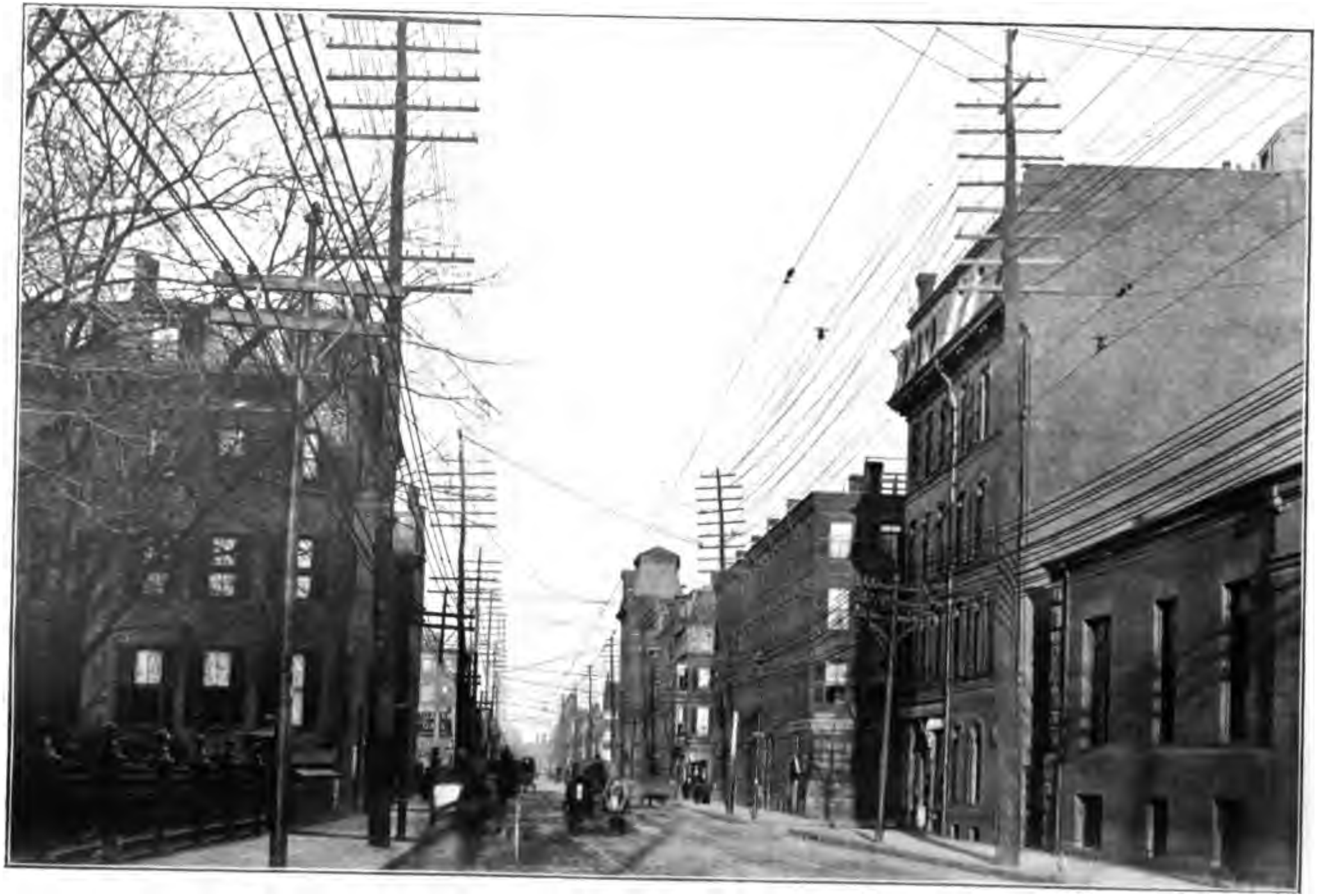

Plate No. 5 — Harrison avenue, near East Newton street, showing conditions before wires were removed.

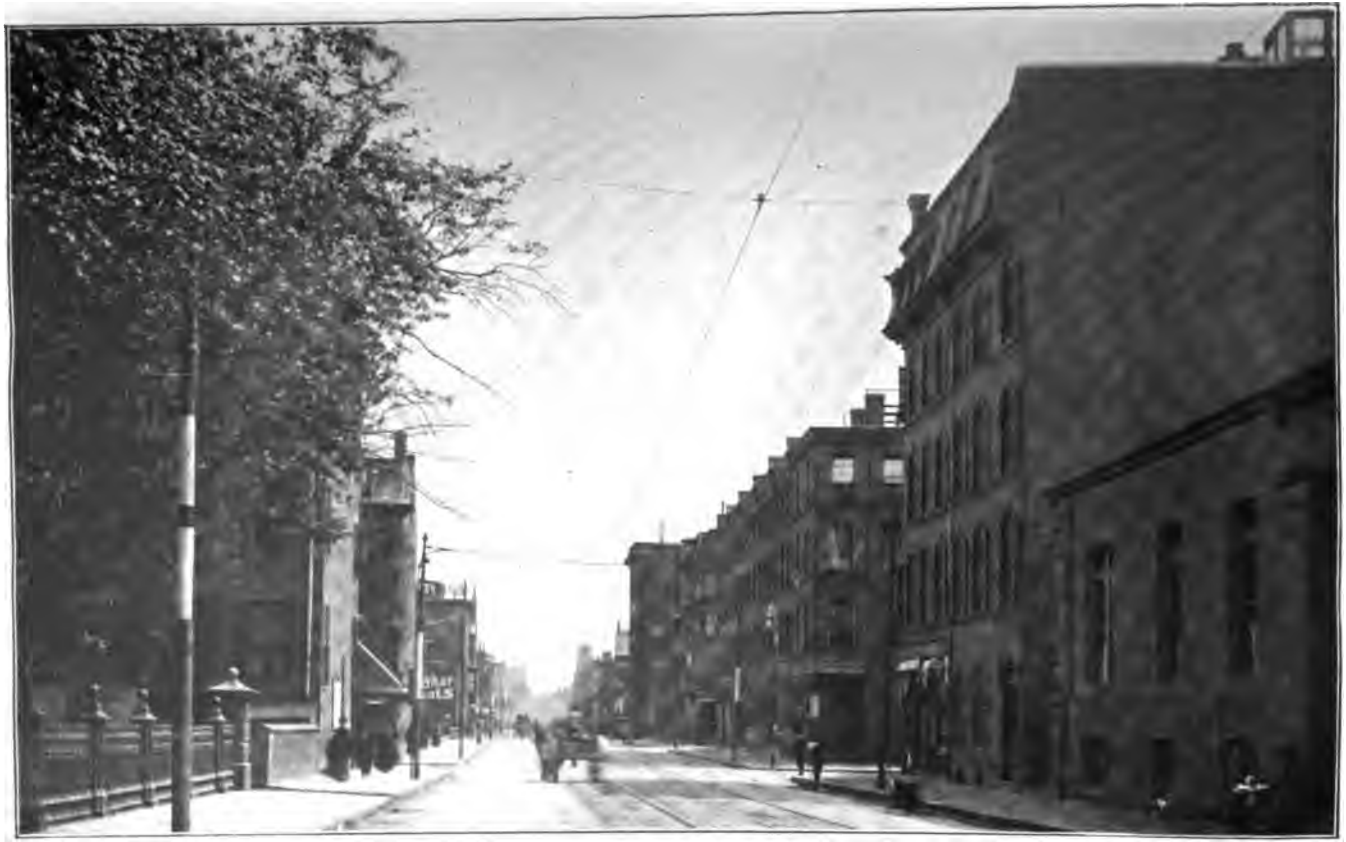

Plate No. 6. — Harrison avenue, near East Newton street, showing conditions after wires had been removed.

Solid System of the Edison Electric Illuminating Company.

Street.	From	To	No. of Ducts.	Type.
Albany	At Bristol		350	Tube
Atlantic ave.	At Lewis wharf		350	"
Atlantic ave.	At Richmond		350	"
Atlantic ave.	At No. 246		200	"
Atlantic ave.	Oppposite Central		200	"
Blossom	At Parkman		200	"
Boylston	At Tamworth		1,000	"
Boylston	At Hemenway		750	"
Boylston			350	"
Brattle	Near Washington		1,000	"
Cambridge	At Joy		200	"
Cedar (West)	No. 17	No. 27	200	"
Cedar (West)	No. 13.	No. 24	200	"
Cedar (West)	No. 24.	Pinckney	200	"
Central	At No. 73.		350	"
Chambers	At Eaton		200	"
Chambers	No. 130	Poplar	200	"
Clinton	At Fulton		750–1,000	"
Columbus ave.	At Ferdinand		750	"
Commercial			200	"
Congress	At Exchange pl.		200	"
Cross	North	Fulton	200	"
Cross	At Endicott		200	"
Cross	At Blackstone		200	"
Dartmouth	At Montgomery		350	"
Dedham (East)	At Albany		350	"
Dover	At Albany		350	"
Eaton	No. 9	Chambers	200	"
Essex	At Columbia		250	"
Exchange pl.	At Congress		200	"
Federal	At Milton pl.		250	"
Federal	Opp. Federal ct.		250	"
Fenway	At Bryant		250	"
Green	At Leverett		200	"
Hanover	At Fleet		350	"
Hanover	At Prince		750	"
Hanover	At Richmond		350	"
Hanover	At Battery		350	"
Hanover	At Cross		350	"
Hanover	At Endicott		200	"
Harrison ave.	At Davis		350	"
Harrison ave.	At Oak		350	"
Joy	No. 46	Myrtle	200	"
Joy	No. 76	Cambridge	200	"
Massachusetts ave.	At Newbury		350	"
Massachusetts ave.	At Boylston		350	"
Medford	At No. 24		200	"
Melcher	At No. 15 Summer		350	"
Merchants row	Opp. Chatham		200	"
Milk	Opp. Broad		200	"
Milk	At India		350	"
Mt. Vernon pl	No. 5	Joy	200	"
Park sq.	Opp. No. 26		500	"
Parkman	No. 4	Blossom	200	"
St. Botolph	No. 110	No. 119	200	"
Shawmut ave.	No. 74	Osborn pl.	250	"
State	At Broad		350	"
State	At Chatham		750	"
Summer	At Dorchester ave		750	"
Summer	At Chauncy		350	"
Tremont	Appleton	Compton	200	"
Tremont	At Springfield		200	"
Tremont row	At Pemberton sq		350	"
Tyler	At Oak		350	"
Wall	No. 10	Minot	200	"
Warrenton	Tremont	Eliot	200	"
Washington	At Bromfield		350	"
Water	At Devonshire		750	"
Union	At Hanover	No. 63	200	"

New England Telephone and Telegraph Company.

Street.	From	To	No. of Ducts.	Type.
Adams	Arcadia	Eaton sq.	6	Vit. clay
Albany	Eustis	Dover	6	"
Albany	At Wareham		2	"
Asticou rd.	At Walk Hill		2	"
Avery	Haymarket pl.	Mason	1	"
Bay State rd.	No. 235	Granby	1	Solid
Batterymarch	Milk	Wendell	24-30	Vit. clay
Bird	Hancock	Columbia rd.	3	"
Blue Hill ave.	Dudley	Moreland	4	"
Boylston	Tamworth	Bumstead ct.	2	Iron
Boylston	No. 687	Exeter	2	"
Brunswick	Warren		1	"
Brookline (East)	Albany	Private way	1	"
Chilmark	Commonwealth ave.	Private way	3	Vit. clay
Clifton	Dudley	Private way	3	"
Commonwealth ave.	Granby		3	"
Dedham (East)	Albany	Private way	2	"
Eaton sq.	Adams	Quincy	6	"
Erie	Washington	McLellan	3	"
Essex	Washington	Chauncy	8	"
Franklin	Pearl	Oliver	45	"
Granby	Commonwealth ave.	Bay State rd.	1	Solid
Hampden	Albany	Dudley	4	Vit. clay
Harvard ave.	North from Holmes ave.		3	"
Harvard ave.	South from Brighton ave.		3	"
Hayward pl.	Washington		6	"
Humboldt ave.	Walnut ave.	Crawford	4	
Huntington ave.	Tremont	Heath	9-12	
La Grange	Washington	Beach	12	
La Grange	At Washington		1	Iron
Massachusetts ave.	Beacon	Harvard bridge	4	Vit. clay
Main	Across Boston and Maine R.R. bridge		4	Wooden
Neponset	Pope's Hill	Neponset Bridge	6-7-8	Vit. clay
Newton (East)	Albany	Private way	2	"
Oliver	Franklin	High	12-90	"
Palmer	Albany	Harrison ave.	8	"
Portland	Hanover	Sudbury	15	"
Ruggles	Duncan	Huntington ave.	3	"
Southampton	Albany	Massachusetts ave.	4	"
Walk Hill	At Asticou rd.		2	"
Warren	Tabor	Zeigler	10	"
Washington	Ashland	Dedham Line	6-10	"
Washington	Milk	Williams ct.	21	"
Washington	Milk	Bromfield	10	"
Washington	Chickering pl.	Bedford	8	"
Washington	Essex	Hayward pl.	8	"
Washington	Boylston	Essex	6	"
Washington	Hayward pl.	Chickering pl.	8	"
Washington	Bedford	Summer	8	"
Washington	Franklin	Bromfield	10-12	"
Washington	Across at Milk		21	"
Washington	Northerly from			
Washington	Summer		8	"
Washington	Across at Avery		4	Iron
Washington	Across at Boylston		6	"
Washington	At Bedford		6	"
Yeoman	Albany	Hampden	4	Vit. clay

Boston Elevated Railway Company.

Street.	From	To	No. of Ducts.	Type.
Dudley	Warren	Magnolia	5-8	Vit. clay
Hampden	Sheridan sq.	Island	3	"
Harrison ave.	E. Springfield	Northampton	6	"
L	At First		1	"
Northampton	Harrison ave.	Sheridan sq.	6	"
Springfield (East)	Washington	Harrison ave.	6	"
Southampton	Sheridan sq.	No. 145	4	"
Tremont	At Boylston		2	Iron
Washington	Waltham	Malden	9	Vit. clay
Warren	Washington	Kearsarge ave.	9-12	"

Postal Telegraph Cable Company.

Street.	From	To	No. of Ducts.	Type.
Devonshire	opposite No. 298		1	Iron
Devonshire	At Water		1	"
Summer	Devonshire	Milton pl.	1	"

Boston Consolidated Gas Company.

Street.	From	To	No. of Ducts.	Type.
Commonwealth ave.	Sherborn	Granby	1	Iron

Boston Auxiliary Fire Alarm Company.

Street.	From	To	No. of Ducts.	Type.
Reed's ct.	Yeoman	Ambrose	1	Iron

Boston Fire Alarm Branch, Boston Fire Department.

Street.	From	To	No. of Ducts.	Type.
Bartlett	Cross	High School	1	Iron
Leverett	Opp. Causeway		1	"
Stafford	Blue Hill ave.	Dennis	1	"

American District Telegraph Company.

Street.	From	To	No. of Ducts.	Type.
Congress	At State		2	Iron

Boston Low Tension Wire Association.

Street.	From	To	No. of Ducts.	Type.
Beach	No 117	South	1	Iron
Cross	At Fulton		1	"
Devonshire	At Water		1	"
Portland	Traverse		1	"
Washington	Franklin	Winter	1	"

Quincy Market Cold Storage and Warehouse Company.

Street.	From	To	No. of Ducts.	Type.
Clinton	Opp. Mercantile		1	Armored
Richmond	Opp. Arlington ave.		1	"

Walker Building Plant.

Street.	From	To	No. of Ducts.	Type.
Van Rensselaer pl			1	Iron

Weeks Real Estate Trust.

Street.	From	To	No. of Ducts.	Type.
Hartford	No. 15	High	1	Iron

Character of Cables Used by the Various Companies.

Company.	Kind of Insulation.	Sizes.
Boston Elevated Railway Co.	Rubber, paper and fibre	No. 6 to 1,000,000 C.M.
Boston & Albany R.R.	Rubber	300,000 C.M.
Boston Automatic Fire Alarm	Rubber	6 and 8 conductor.
Boston Auxiliary Fire Alarm	Rubber	4 conductor.
Boston Consolidated Gas Co.	Rubber	No. 4, 6 and 8.
Boylston Brewery	Rubber	No. 10.
Charlestown Gas and Electric Co.	Rubber and paper	No. 2 and 4.
Edison Electric Illuminating Co.	Rubber and paper	No. 6 to 1,000,000 C.M.
Fire Alarm Branch (B. F. D.)	Rubber	6 to 37 conductor.
Holmes Electric Protective Co.	Paper	480 and 600 conductor.
Institutions Department (City of Boston)	Paper	No. 19 to 250,000 C.M.
Massachusetts Tel. and Tel. Co.	Paper	50 pair.
Mutual District Messenger Co.	Rubber	25 conductor.
New England Tel. and Tel. Co.	Paper	30 to 480 pair.
Police Signal Service (B. P. D.)	Rubber	7 conductor.
Postal Telegraph-Cable Co.	Paper	6 to 125 conductor.
Walker Building Plant	Rubber	450,000 C.M.
Weeks Real Estate Trust	Rubber	No. 1 and 00.
Western Union Telegraph Co.	Rubber and paper	40 to 150 conductor.

Table Showing the Underground Electrical Service of Boston.

	To 1906.	1906.	Jan. 31, 1907.
Feet of conduit	1,408,498	84,465	1,492,963
Feet of single duct	9,121,354	627,428	9,748,782
Feet of cable	11,400,598	534,675	11,935,273
Number of manholes	6,388	366	6,754
Number of service connections	13,391	976	14,367
Feet of solid tubing (Edison)	548,412	14,959	563,371
Distribution boxes (Edison)	489	9	498
Park boxes	145	....	145

Note. — Of the 14,959 feet of Edison tubing recorded above, 4,929 feet is reckoned as conduit, but is not included in the 84,465 feet of conduit in this table.

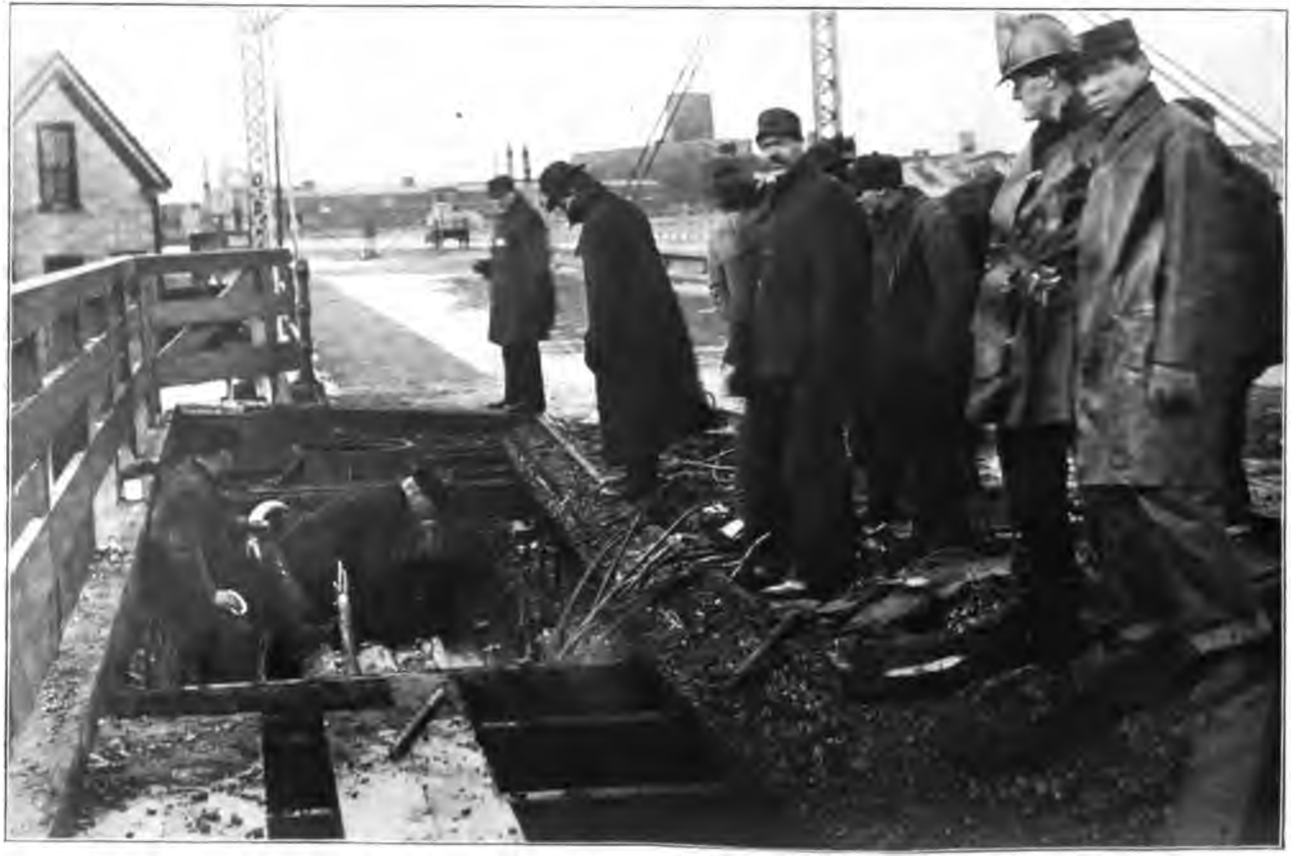

Plate No. 7. — Burnout in manhole at L street bridge.

Table Showing the Underground Work for the Year 1906.

COMPANY.	Feet of Conduit.	Feet of Duct.	Feet of Cable.	Number of Man-holes.	Number of Services.
American District Telegraph Company.......	25	50	....	......	....
Boston & Albany Railroad..................	110	110	220	......	....
Boston Automatic Fire Alarm	....	....	960	......	....
Boston Auxiliary Fire Alarm................	400	672	3,500	1	3
Boston Consolidated Gas Company...........	71	558	440	1	10
Boston Elevated Railway Company..........	9,954	60,409	45,600	39	47
Boston Low Tension Wire Association.......	972	1,848	....	6	4
Boylston Brewery............................	....	88	100	......	1
Charlestown Gas and Electric Company......	....	258	653	......	5
Edison Electric Illuminating Company.......	20,375	166,759	253,964	112	608
Fire Alarm Branch (B. F. D.)................	615	1,873	21,712	1	21
H. A. Holden Company........	....	81	....	......	1
Holmes Electric Protective Company.........	....	....	2,367	......	....
Institutions Department (City of Boston)....	....	....	3,475	......	....
Massachusetts Telephone and Telegraph Co..	....	84	105	......	1
Mutual District Messenger Company.........	....	....	180	......	....
New England Telephone and Telegraph Co...	51,453	392,299	155,297	205	239
Police Signal Service (B. P. D.)..............	110	2,139	30,450	......	28
Postal Telegraph Cable Company.............	122	207	6,370	1	....
Quincy Market Cold Storage Warehouse Co..	108	108	....	.....	....
Walker Building Plant.......................	120	144	280	......	3
Weeks Real Estate Trust...........	30	30	120	......	....
Western Union Telegraph Company..........	....	266	8,932	......	5
Totals.........................	84,465	627,428	534,675	366	976

NOTE. — Main and feeder tube or solid system distribution boxes of the Edison Electric Illuminating Company are not included in the above figures. Amount of tube laid during the year 1906 was 14,959 feet; of this, 4,929 feet is reckoned as conduit; there were 9 new distribution boxes installed.

Table Showing the Amount and Distribution of Boston's Electrical Power, January 31, 1904.

	Total rated Horse Power of Boilers.	Total rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of Stations.
Boston Elevated Railway Co.	28,770	54,450	41,482	893	4,797	136,640	8
Edison Electric Illuminating Co.	16,726	32,275	536,724	8,518	6,501	22,726	10
Charlestown Gas and Electric Light Co.	....	....	....	....	32	190	....
Brookline Gas Light Co.	1,000	3,100	3,500	600	70	376	1
* Isolated Plants	60,095	37,649	197,976	3,849	841	8,061	274
Block Plant Co.	273	417	5,250	....	3	16	1
Sudbury Building	202	230	727	1	26	138	1
Steam and Power Co.	267	295	4,000	400	42	216	2
Hecht Building Plant	300	200	2,400	240	32	117	1
Totals	170,633	128,616	792,059	14,001	12,344	168,500	298

* The capacity of generators for isolated plants in k. w., 20,125.

January 31, 1905.

Boston Elevated Railway Co.	28,770	54,450	48,785	449	4,899	144,920	8
Edison Electric Illuminating Co.	24,918	48,030	579,818	9,044	7,065	24,566	11
Charlestown Gas and Electric Light Co.	....	....	....	....	41	204	....
Brookline Gas Light Co.	1,000	3,100	30,000	600	72	412	1
Block Plant Electric Light Co.	273	417	5,250	....	3	16	1
Sudbury Building	202	230	727	1	26	150	1
Steam and Power Co.	267	295	4,000	400	41	214	2
Hecht Building Plant	300	200	2,400	240	31	217	1
* Isolated Plants	61,943	38,995	203,559	3,707	1,052	9,211	274
Totals	117,673	145,717	874,539	14,441	13,250	179,910	299

* The capacity of generators for isolated plants in k. w., 21,177.

January 31, 1906.

Boston Elevated Railway Co.	28,770	54,450	*44,670	496	4,956	153,860	8
Edison Electric Illuminating Co.	22,743	44,840	635,233	9,851	7,455	28,080	13
Charlestown Gas and Electric Light Co.	... .	....	....	....	54	261	....
Boston Consolidated Gas Co.	1,250	3,100	74,000	600	76	472	1
Block Plant Electric Light Co.	273	417	5,250	....	3	16	1
Sudbury Building	202	230	719	3	33	171	1
Steam and Power Co.	267	295	4,000	400	41	214	2
Hecht Building Plant	300	200	2,400	240	32	234	1
* Isolated Plants	62,049	39,399	205,439	3,681	1,074	9,235	276
Totals	115,854	142,931	971,711	15,271	13,724	192,493	303

* The capacity of generators for isolated plants in k. w., 21,287.

January 31, 1907.

Boston Elevated Railway Co.	30,914	59,170	60,728	569	4,911	191,307	10
Edison Electric Illuminating Co.	23,659	47,575	686,358	9,581	8,489	30,839	13
Charlestown Gas and Electric Light Co.	....	....	....	....	80	392	....
Boston Consolidated Gas Co.	1,250	3,100	80,000	600	101	469	1
Block Plant Electric Light Co.	273	417	5,250	....	3	16	1
Sudbury Building	202	230	727	2	25	114	1
Steam and Power Co.	267	295	4,000	400	60	294	2
Hecht Building Plant	300	200	2,400	240	32	234	1
* Isolated Plants	64,921	42,792	221,415	3,771	1,297	10,651	298
Totals	121,786	153,779	1,060,878	15,163	14,948	234,316	327

* The capacity of generators for isolated plants in k. w., 21,087.

INTERIOR DIVISION.

A comparison between the summary of the work of this division for the past year with that of the year ending February 1, 1905, shows a decided increase in same.

The number of notifications of new work received during the past year shows an increase over the number received during the year just previous of over 10½ per cent.; the total number of inspections made shows an increase of over 15½ per cent., while the other items tabulated in the summary, with the exception of arc lights where there has been a decrease in the number inspected, shows increases from 4⅓ per cent. to 53½ per cent., the largest gain being in the number of inspections made of motors.

A special effort has been made to inspect old installations, and such time as could be devoted to same, without interfering with the inspection of new work as called for in chapter 268 of the Acts of 1898, has been utilized for that purpose.

One of the immediate results of this inspection of old work has been the correction of many dangerous defects which were found and were brought to the attention of the proper parties who, with very few exceptions, took immediate steps to make necessary corrections as soon as the matter was brought to their attention.

Among the inspections of old work were those of sixty-eight isolated plants, including all wiring and apparatus connected therewith. With a few exceptions the plants inspected were found to be defective, and a number of them were found to be in a dangerous and deplorable condition. The addition of wiring or apparatus to isolated plants is often done without the knowledge of the department, and as current is not supplied by a public service corporation an application for a permit to turn current on is seldom received, current being turned on from plant without the approval or knowledge of this department, as required by law.

To a considerable extent this is also applicable to small additions to existing installations, which are supplied with current by public service corporations, as additions are occasionally made without the knowledge of the department or the party supplying current, and oftentimes the type of wiring, put in under such conditions, is just the type that is in need of careful inspections. The present laws relating to this department require that notification of work be sent to the Commissioner of Wires, but the fact that there is no penalty attached to failure to comply with said requirement may be responsible for its evasion.

The inspection of theatres and halls, as required by chapter 450 of the Acts of 1894, have been made by this department, in so far as the electrical equipment of same is concerned. Each theatre, in addition to the monthly inspections and tests made of the equipment of same, has been visited weekly, inspection being made of temporary wiring or electrical equipment of the production staged at theatre at the time.

The benefits of the monthly inspections of theatres are shown very plainly by the results of same. Whereas, when inspections were made at irregular intervals, defects, such as broken sockets, fixtures, etc., were permitted to accumulate, the correction of them being postponed from day to day until, when inspection was finally made, a long list of defects would be noted, necessitating action on the part of the department to cause a correction of the same to be made; under the monthly inspection this condition does not exist. The visit of the inspector is anticipated, and, as there is no date set for his visit, for it may be any day of the month, the electrician of the theatre, with a natural pride that installation under his charge be not the subject of adverse criticism, corrects the defects that arise from wear and tear as soon as they come to his attention, with the result that the installation is kept in better condition under the monthly inspection system than it ever was before.

The weekly inspections of electrical equipments of travelling companies coming to the Boston theatres have also been of great benefit in the interests of safety to the theatres, to the audiences and to others in same.

This class of wiring needs the most careful attention and even with the most careful inspection that it is practicable to make there may still be hidden defects that are a menace to safety. Some of the equipments which have come to this city during the past year have been so dangerous that they have been condemned in their entirety and their use not permitted, while many others had dangerous defects existing that we required corrected before equipments were permitted to be put into service.

The matter of national standard requirements for wiring and the electrical equipments of theatres is at present being

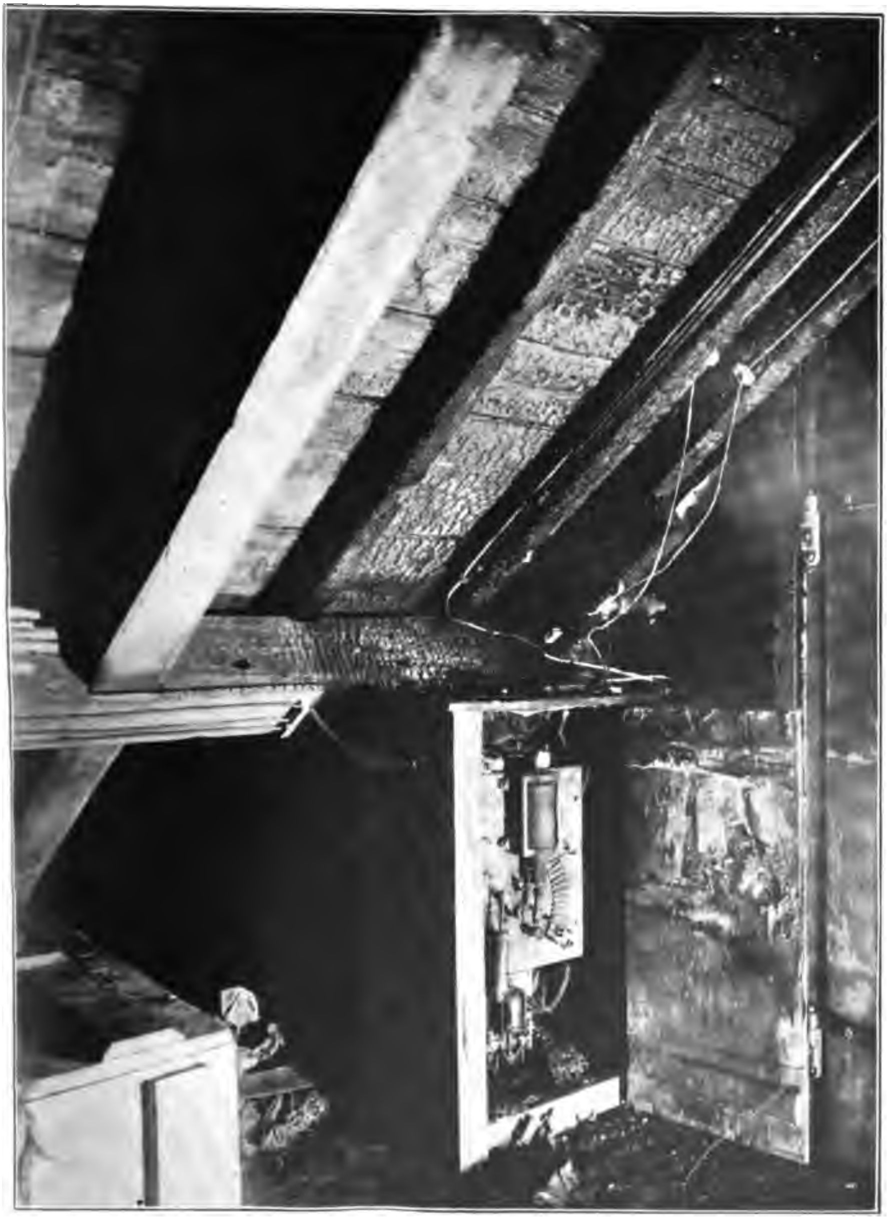

Plate No. 8 — Fire due to electrical causes.

given careful consideration by a committee of which a representative of this department is a member, the committee to report at a general meeting or convention to be held in New York next month under the auspices of the electrical committee of the National Underwriters' Association. It is probable that one of the results of action on this matter will be a very much higher standard in the class of electrical equipments carried by the travelling combinations.

During the year the Edison Electric Illuminating Company completed the grounding of their existing alternating current services in this city, about 300 old services being grounded by them. In addition to this, there have been about 400 new services grounded during the year. This makes a total for the two years ending February 1, 1907, of 1900 A.C. services grounded by means of individual ground wires to water services. Ground wire has in all cases been a No. 4 B. & S. gauge rubber insulated copper wire run in accordance with our rules and requirements, which are the same as those of the "National Electrical Code."

One of the incidental benefits as a result of the grounding referred to above has been that inspections and tests of installations were necessary before a permit to connect ground wires to same could properly be issued, consequently many old installations were inspected and tested that might otherwise not have received such attention for some time to come.

The largest individual installation completed during the year was that of the Harvard Medical School buildings, located on Longwood avenue. The buildings consist of five school buildings and the power-house. From the latter current is also furnished to the Good Samaritan Hospital, the mains for same being run through a connecting pipe tunnel.

In the power-house there are three 230-volt three-wire generators, with a total capacity of 725 kilowatt, there being two 300-kilowatt and one 125-kilowatt machines, two 250-volt 180 horse-power motors used for circulating heating water, one 220-volt 13 horse-power motor used for circulating brine, one 230-volt 1 horse-power motor used for circulating hot water, and one 230-volt 7½ horse-power motor for power in machine shop.

The power-house and school buildings are inter-connected by tunnels of such size as to contain all necessary heating and other pipes, wires, etc., and afford convenient passageways for the chief engineer, his assistants or others whose duties entitle them to the use of said tunnels.

The feeders are of slow-burning, weatherproof insulation, run on porcelain insulators supported on iron supports.

There is in the neighborhood of 20,000 feet of cable in the feeder system, the greater portion of which is of 1,000,000 C. M. capacity. For the mains, from the distributing switchboard in basement to the various cabinets in buildings, about 80,000 feet of rubber insulated wire was used, same being run in iron conduit.

For the tap circuits, about 160,000 feet of rubber insulated twin wire was installed in iron conduit.

There are 334 tap circuit cabinets, from which about 3,000 tap circuits are run.

The lighting installation is the three-wire 110–220-volt system, and consists of about 8,500 wired up sockets for incandescents and 50 outlets for arc lamps (mostly for stereopticons). In addition to these there are 300 plug receptacles in tables, baseboards, etc., for special attachments to lighting system. Individual circuits are run to receptacles in laboratories for the attachment of heating devices.

The power installation of the school buildings consists of 9 inlet fan motors with a total capacity of 258 horse-power, 27 outlet vent fans with a total capacity of 104 horse-power, and provision has been made for some small motors for power purposes in various rooms, making a total of about 400 horse-power.

Plates numbered 9, 10 and 11 in this report are respectively views of the power-house (inside), installation of balancing compensators used in connection with three-wire generating apparatus and located in basement, and one of the feeder junction boxes located in tunnel.

During the year many tests have been made in the well-equipped laboratory of the department of devices and materials submitted for approval for use in this city. By its use it has been possible to give intelligent and equitable decisions regarding appliances submitted.

All fires and accidents due, or supposed to be due, to electrical causes, coming to the attention of the department, have been the subject of careful investigation, records of which have been kept. In many cases fires have been reported as due to defective electric wiring when there was no wiring of any description in the vicinity of fire, and in other cases, while there were wires in the vicinity of where fire occurred, it was plain to be seen that they had nothing to do with causing the fire, neither were they materially affected by same.

Fires for which three or more alarms were given were responded to by members of the department.

During the year, the number of fires originating in the interior of buildings have been fourteen (14) as compared with twenty (20), twenty-three (23), and thirty-two (32) fires respectively for the three years previous.

The majority of the fires during the past year were of minor character, and for nine of same there was no insurance loss. For the other five fires, there was an insurance loss of $15,364.05, the greater portion of this loss, namely, the sum of $11,705, being for a fire at No. 105 to 113 Summer street, caused by severe sparking at the commutator of a 10-horse-power motor operating a freight elevator, sparks falling into some excelsior in packing boxes which had been left beneath; the next heaviest insurance loss was $2,644.50 for a fire at No. 79 Commercial street. At this place a short circuit in a portable cable caused a 10-ampere plug fuse to blow. An employee removed the blown plug and replaced same with an old plug that had copper wire soldered into same instead of proper fuse metal. Switch controlling current for portable light was then thrown on again, short circuit re-occurring and hot metal being thrown upon a bale of oakum, igniting same. Of the other three fires, one causing a loss of $591.77 was due to the improper operation of an automatic starter for an elevator motor; one causing a loss of $277.78 was due to arcing at point where circuit wire opened as a result of electrolytic action where wires were subject to excessive dampness; and the other fire, causing a loss of $145, was due to defective condition of starting rheostat, causing excessive sparking at commutator of elevator motor, sparks igniting inflammable material in vicinity of motor.

During the year there were fourteen (14) accidents to persons, two of which resulted fatally. Of the fourteen (14) accidents, eleven were to experienced men who were working on wires or electrical apparatus at the time accidents occurred. Of the fatal cases, one was to an employee of the Edison Electric Illuminating Company, who came in contact with a conductor of a 2,300-volt A. C. circuit while on a pole, the other being to an employee of the Boston Elevated Railway Company, he being fatally burned as a result of a short circuit between one of their feeder cables and iron work of elevated structure at point where victim was at work. Of the three accidents to inexperienced parties, one was to a painter who climbed a pole for the purpose of painting same, and who received a slight shock causing him to fall 15 or 20 feet to the ground; one was to a person who fell from a station platform of the Elevated railway, coming in contact with third rail, and the other was to a boy twelve years of age, who climbed a pole and came in contact with a 2300-volt wire.

The following is a complete summary of the work of the Interior Division, for the year ending January 31, 1907:

Notices of new work received	10,412
Buildings in which wiring was completely examined	1,173
Incandescent lights examined	716,137
Arc lights examined	4,469
Motors examined	4,619
Total horse-power of motors examined	21,725
Services examined	780
Inspections made	27,286
Defects reported	1,425
Defects corrected	966

Other defects in process of correction.

During the year there have been fifty-nine fires, or accidents to property, the origin of which was traced to electricity;

Fires in interior of buildings	14
Fires on outside walls of buildings	1
Fires at bridges	4
Fires on poles	2
Explosions in manholes	2
Miscellaneous (exterior)	31
Miscellaneous (interior)	5

The following is a record of isolated plants in operation in this city:

Number of	plants,	298.		
"	boilers,	630,	total horse-power,	64,921
"	engines,	543,	" "	42,792
"	generators,	521,	" k. w. capacity,	21,087¼
"	motors,	1,297,	" horse-power,	10,651
"	incandescents,	221,415.		
"	arcs,	3,771.		

The record of new plants installed and inspected is as follows:

Number of	plants,	22.		
"	boilers,	19,	total horse-power,	2,872
"	engines,	36,	" "	3,393
"	generators,	33,	" k. w. capacity,	1,800¼
"	motors,	223,	" horse-power,	1,416
"	incandescents,	15,976.		
"	arcs,	90.		

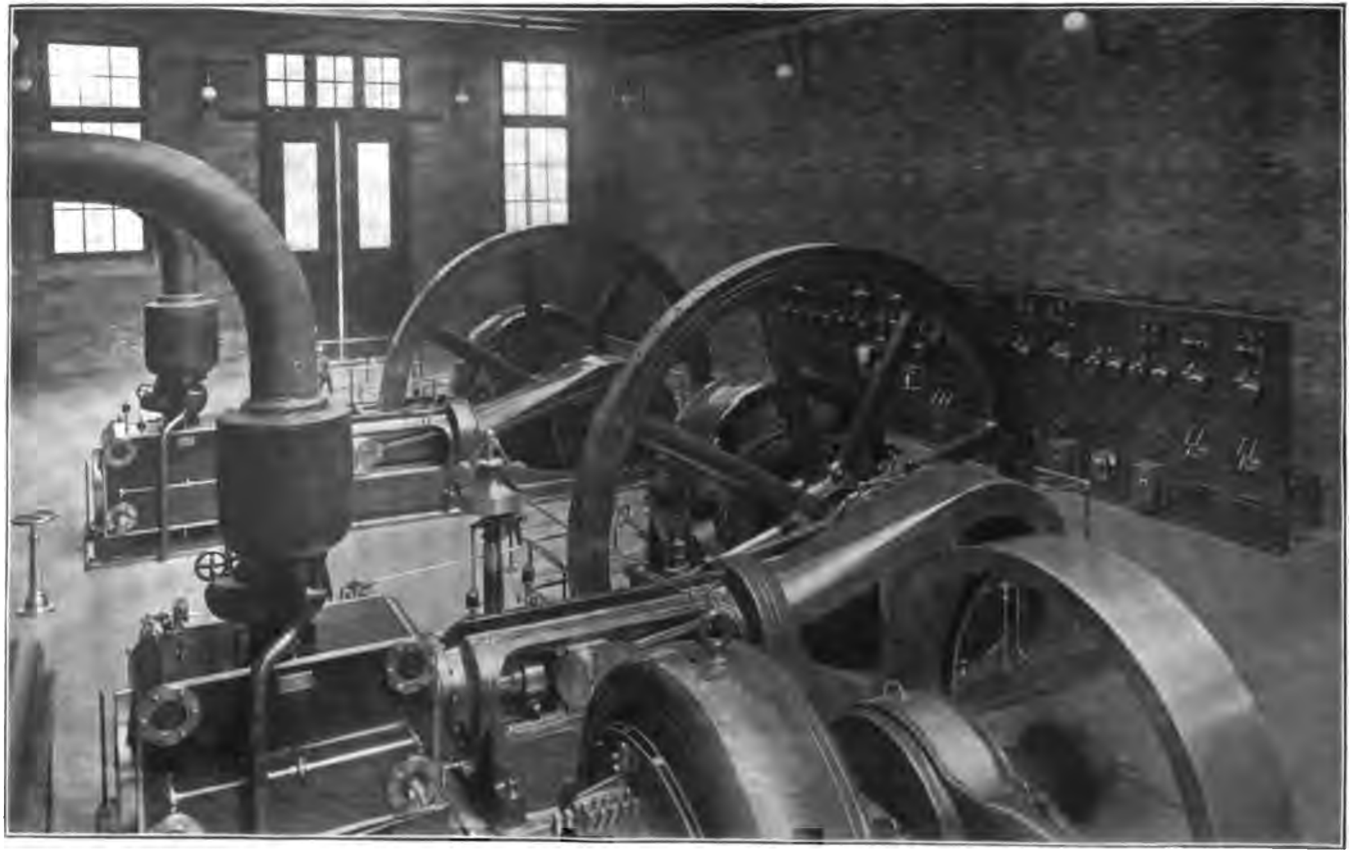

Plate No. 9. — Power house, new Harvard Medical School.

During the year ending January 31, 1907, there were sixty-eight old plants inspected, the equipment of which was as follows:

Number of boilers,	140,	total horse-power,	15,158
" engines,	87,	" "	8,584½
" generators,	109,	" k. w. capacity,	3,460¾
" motors	422,	" horse-power	2,805½
" incandescents	39,512.		
" arcs,	457.		

FIRES AND MISCELLANEOUS TROUBLES DUE TO ELECTRICITY.

February 25, 6.40 P.M., Box 134, at No. 303 West Fourth street, South Boston; tree fire caused by grounding of current from high potential arc circuit, wire of which was in contact with limb of tree.

March 5, about 11 A.M., No. 49 Berkeley street; short circuit occurred in 500-volt service wires entering basement from underground. No damage except to service wires and the scorching of some woodwork in the immediate vicinity of same. Members of Protective Department called on still alarm.

April 4, 8.13 A.M., Box 16, No. 5–6 South Market street; fire on fifth floor confined to immediate vicinity of 10 horse-power motor used to operate freight elevator. Rheostat used in connection with motor was defective, the greater portion of the coils being open-circuited, motor not taking current until contact finger was on next to last button of contact points. Motor was started shortly before fire was discovered, and excessive sparking at commutator, due to defective condition of rheostat, occurred. Fire was caused by these sparks igniting oil, lint or other inflammable material in vicinity of motor. Insurance loss, $145.

April 4, 8.45 P.M., tree fire in front of 724 Washington street, Dorchester, due to high potential arc circuit wire coming in contact with tree.

April 9, 2.57 A.M., Box 8, No. 35 Commercial wharf; burn-out in underground service cable of the Edison Electric Illuminating Company entering building. Building was undergoing repairs and cable was undoubtedly injured during same. No damage except to cable.

April 9, Warren-street drawbridge; trolley hanger of street railway system became grounded, current setting fire to the block to which hanger was attached; rain-storm in progress at the time. No damages except to block.

April 10, Harrison avenue extension, corner Hayward place; trolley pole of the Boston Elevated Railway Company was charged, due to broken down insulators.

April 16, about 1.31 P.M., two alarms from Box 52, No. 105–113 Summer street; fire was caused by severe sparking at commutator of a 10 horse-power motor used to operate freight elevator. Motor was located on a shelf or platform on fifth floor of building, and sparks fell into some excelsior in packing boxes which had been left beneath. Insurance loss $11,705.

May 2, about 7.30 P.M., Quincy street, near Coleman street; tree fire caused by high potential arc-light wire in contact with limb of tree.

May 5, 7.36 P.M., Somerset street, City Prison; Chemical Engine No. 1 called on still alarm on account of electrical trouble at entrance to City Prison, due to break-down in insulation of series arc-light cable. Grounding of current with consequent arcing between wire and lead sheath of cable.

May 17, about 8 P.M., Dorchester avenue, near Dracut street; Combination Wagon No. 1, Boston Fire Department, called on still alarm on account of tree fire, same being due to primary alternating wire pulling away from insulator and coming in contact with limb of tree.

May 27, 10.06 P.M., No. 325 Longwood avenue; members of Engine 37 called on still alarm on account of flashing and arcing where high potential arc-wire swung in contact with metal of roof of building. Damage slight.

May 28, 6.25 P.M., corner Pembroke street and Shawmut avenue; members of Chemical 4 called on still alarm on account of slight tree fire caused by high potential arc-wire coming in contact with limb of tree.

June 5, 12.30 A.M., No. 461 Washington street; slight fire in basement at centre of electrical distribution caused by poor connections between fuse wire and ferrule of a 60-ampere enclosed type of fuse where fuse wire was supposed to be securely soldered to ferrule, causing arcing and melting of metal at that point. Fire was communicated to insulation of wires and also to surrounding woodwork. Extinguished by watchman.

June 6, 5.30 P.M., Tremont-street subway, between Boylston and Pleasant streets; Fire Department called on still alarm. Short circuit occurred in feed cables of the Boston Elevated Railway Company in conduit located by the side of north bound track. Five cables were burned out and explosions also occurred in manholes of the Boston Elevated Railway Company at the corner of Eliot and Tremont streets, and the corner of Pleasant street and Shawmut avenue as result of burn-outs. As result of explosion at the last mentioned manhole, several panes of glass were broken in neighboring stores.

June 12, 3.25 A.M., Box 249, slight fire on second floor of stable owned and occupied by A. J. Houghton Company, Halleck street. Insulation of wires where they left heads of floor tubes were affected by water used by stablemen in washing horses' legs and feet, cement floor being kept wet or damp practically at all times. Electrolytic action caused one of the wires to corrode to a point where it was not of sufficient carrying capacity. Circuit opened at this point and heating and arcing occurred, igniting insulation on wire which communicated fire to boxing protecting wires from mechanical injury, thence to timbers of floor above before discovered. Insurance loss, $277.78.

June 15, about 8.30 P.M., No. 1419 Columbus avenue, corner of New Heath street; arcing at cross between electric lighting and telephone wires.

June 16, about 10.46 P.M., Box 639, opposite No. 71 Saratoga street, East Boston; telephone wire broken and fell across high potential arc wire with consequent arcing and flashing at point of cross.

July 2, about 9 A.M., manhole, Causeway street, in front of No. 33; explosion in manhole, lifting cover slightly, accompanied by report; some flame and considerable smoke. Burn-out occurred in 500-volt circuit, resulting in explosion.

July 10, 7.01 P.M., Box 37, Nos. 210 and 212 Commercial street; fire on top floor due to the improper operation of automatic self-starter used in connection with elevator motor. Insurance loss, $591.77.

July 11, 10.27 A.M., Box 28, No. 47 Commercial street; burn-out occurred in main feed wires in street; flames came through cracks in foundation wall of building; no damage in building except the slight burning and scorching of some empty barrels.

July 13, 3.13 P.M., Box 13, in trench opposite Nos. 191 and 193 North street; burn-out in service cable of the Edison Electric Illuminating Company, short circuit being caused by pick axe in the hands of one of the workmen digging up street being driven into service cable. No damage except to cable.

July 14, 10.59 A.M., automatic alarm Box 121–4, Pier 41, Hoosac Tunnel Docks; no fire, but thermostat opened as result of overheating of resistance; used in connection with elevator, from improper operation of apparatus.

July 15, 5.34 A.M., Box 244, Boston Elevated Railway Company yard, corner Guild street and Lambert avenue;

slight fire on the underside of car No. 066 used on elevated system, due to a short circuit between leading-in wires to 4½ horse-power motor used in connection with air compressor.

July 18, 7.53 P.M., Nos. 36–38 India Wharf, Engine 25 and Ladder 8 called on still-alarm; burn-out occurred in cable service of the Edison Electric Illuminating Company, just outside of building and beneath sidewalk, smoke coming up between crevices in same. No damage except to cable.

July 26, 7.45 P.M., No. 64 River street; members of Engine 16 called on still-alarm; tree fire opposite No. 64 River street, caused by high potential arc-circuit wire becoming detached from insulator and coming in contact with limb of tree. No damage except to tree and the burning of insulation on wire for several feet.

July 27, 12.50 A.M., Peabody square, Ashmont; Chemical 1 called on still alarm; bridge over Shawmut Branch of the New York, New Haven & Hartford Railroad; high potential arc-wire came in contact with another wire (or wires) burned off and fell; arcing and flashing ignited housing through which water and gas pipes were run across bridge, doing considerable damage to same. A peculiarity of this trouble was that the two parted ends of the arc-wire fell in such manner that the circuit was completed through the ground, the iron pipes which run through the housing forming a portion of the circuit, and the street lighting service provided by the circuit on which trouble occurred was not interrupted until some time after fire was started.

July 30, 1.27 A.M., Box 314; Blue Hill avenue near Intervale street; tree fire caused by high potential arc-wire of the Edison Electric Illuminating Company, becoming detached from insulator and coming in contact with limb of tree. No damage other than slight burning of tree.

July 30, discovered about 8 A.M., Castle Island bridge; fire at base of electric light pole, due to grounding of current from high potential arc-light circuit during severe rainstorm. Base of pole and bridge timbers and flooring in the immediate vicinity of same badly burned.

August 4, 6.57 P.M., Box 9; North End park, Women's Lavatory; short circuit inside of canopy of 4-light ceiling fixture; wires melted off and hole melted in canopy of fixture. No further damage.

August 16, 7.54 A.M., Box 15; 79 Commercial street; short circuit occurred in cable to portable light; plug fuse in cut-out blew, relieving circuit; employee at premises removed blown plug and inserted a repaired plug which had copper

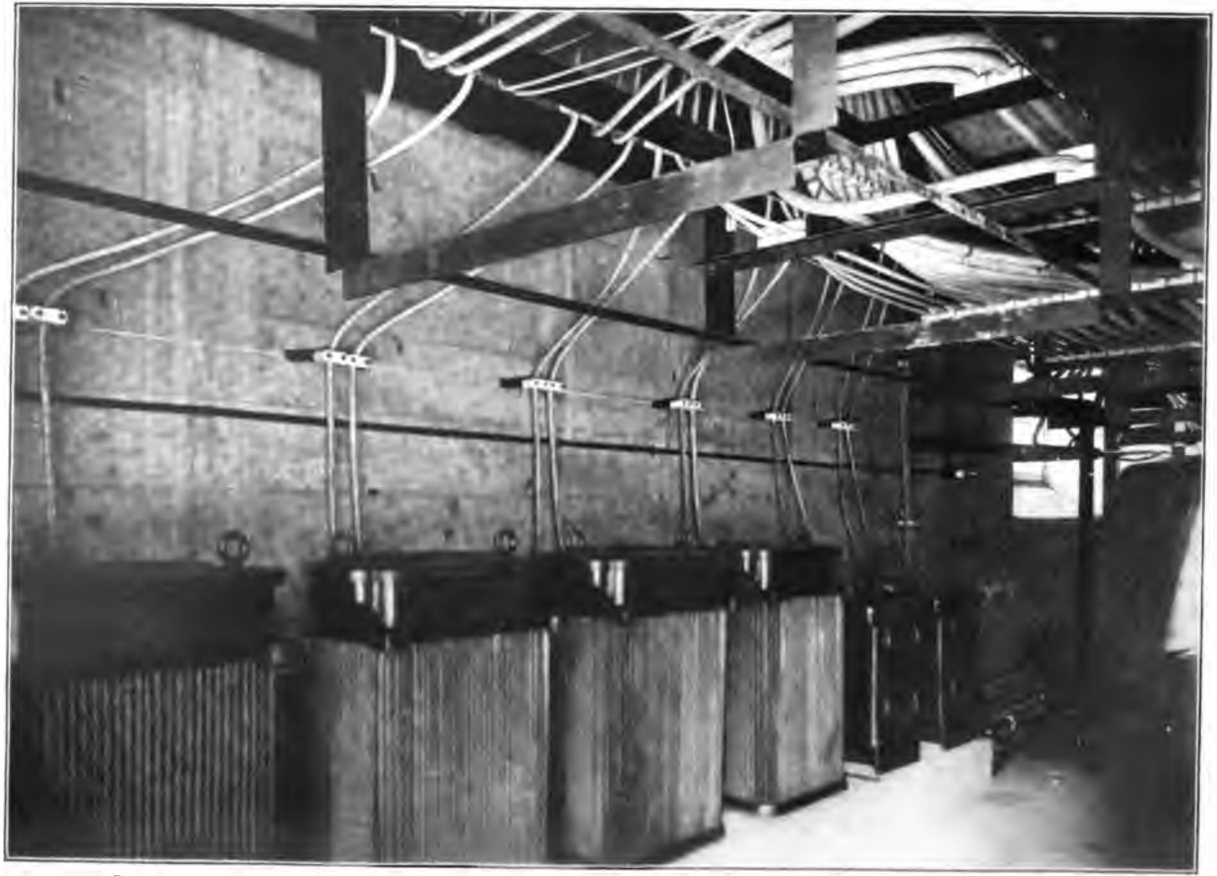

Plate No 10. — Balancing compensators used in connection with three-wire generating apparatus, Harvard Medical School wire in same instead of proper fuse metal; switch controlling portable was then thrown on; defective fuse blew, throwing hot metal in a bale of oakum, igniting same. Insurance loss $2,644.50.

August 27, about 11.11 P.M., Castle Island Bridge; fire in switchbox, caused by lightning discharge.

August 23, about 8 P.M., opposite No. 42 Kittredge street; cross between high potential arc-light wire and telephone wires, necessitating the running of new stretch of wires by telephone company.

September 12, 5.51 P.M., 480 Beacon street; defective operation of starting apparatus used in connection with motor operating elevator caused resistance coils to overheat, causing motor room to fill with smoke; trouble discontinued by opening motor switch; no fire. Engine 33 and Ladder 15 called on still alarm.

September 12, 11.55 P.M., Columbus avenue, opposite Ferdinand street; short circuit in underground electric mains at point where same entered manhole; manhole filled with smoke and flame and cover of manhole slightly lifted off of same. No damage except to mains. Chemical 2 notified by citizen at time of trouble.

September 19, 1.25 P.M., 85 Water street; one wire of a 3-wire 110–220 volt service grounded on edge of service-box inside of building, wire burning off. No other damage. Ladder 8 and Engine 25 called on still alarm.

September 21, 2.30 A.M., Box 136, K street, near corner of First street, South Boston; ground of current from series arc-lighting circuit, ground being between wire and end of lead sheath of cable just above where it left standpipe. No damage except to cable. Severe rain-storm in progress at the time.

September 21, 9 A.M., Longwood avenue, near Brookline avenue; tree fire caused by high potential alternating current circuit wire coming in contact with limb of tree.

September 21, early morning, Fargo street, near Summer street extension; current from high potential alternating circuit grounded on lead sheath of cable just above where it left standpipe. Damage confined to a foot or two of conductor. Severe rain-storm in progress at time of trouble.

September 21, Box 433, 12.49 A.M., Chelsea Bridge; current from series arc circuit feeding street arc lights, grounded at point where wires came up from under side of bridge and passed through iron pipe up pole to cross-arm. Damage was confined to conductor, melting of end of pipe and burning and charring of wood planking and pole for about an inch in depth.

September 23, 1.18 P.M., Engine 14 called on still alarm; tree fire caused by tree bracket becoming detached from tree, permitting high potential lighting circuit wire to come in contact with limb of tree. Trouble slight.

September 26, about 9.10 P.M., corner Dover and Washington streets, Hub Theatre; improper management of moving picture machine permitted film to stop in front of focusing lens, as result of which film was ignited and about six inches of film was destroyed. As apparatus was properly constructed, fire did not extend beyond point where film entered magazine.

September 29, 11.50 P.M., Box 516, Lotus place, wooden car barn belonging to the Boston Elevated Railway Company; while car was being run into car barn, trolley wheel left wire and caught between a sprinkler pipe and wood ceiling. Sprinkler system, steampipe system, metal water conductors from the roof, metal flashing, etc., around monitors on the roof and water standpipes became charged with electricity, with consequent arcing at various places, with the resulting melting in places of conductors, pipes, metal on roof and roof conductors. Sprinkler system, which was insulated when installed, was grounded by means of a steampipe, the hangers of which had been pulled out while repairs were being made on pipes, permitting pipe to come in contact with sprinkler system. In addition to damage to pipes, etc., roof was ignited and small hole burned through same, fire was extinguished by Boston Elevated Railway Company employees before the arrival of the Fire Department.

September 15, about 2.15 P.M., East Boston Tunnel, incline on East Boston side; trolley wheel slipped from wire and trolley arm made simultaneous contact with trolley wire and span wire, the insulator of which was defective; trolley wire burned off, one end flying against and being welded to pipe containing lighting wires, several circuits being burned out as a result.

October 21, 4.56 P.M., alarm from Box 17, Nos. 90–104 Hanover street; flash resulting from short circuit in electric light fixtures in window ignited a lace collar which was in contact with canopy of fixture. Damage slight. No insurance loss.

October 31, 4.26 A.M., Box 23, Nos. 28–30 Pitts street; grounded current from series arc-light circuit caused arcing and flashing just above point where it left standpipe and ran to feed street arc light on bracket attached to corner of building Nos. 28–30 Pitts street. No damage except to wire.

November 1 (evening), corner Putman and Dudley streets; slight tree fire due to the grounding of current from high potential circuit on limb of tree.

November 9, shortly after 8 P.M., corner State and Washington streets; fire in catch box on underground electric system of the Edison Electric Illuminating Company, due to short circuit in same. No damage except to box.

November 16, 6.07 P.M., Box 921, Freeport street power station of the Boston Elevated Railway Company; short circuit at commutator of a 1,000 kilowatt generator. Insulation of wires, oil and grease beneath generator ignited. No damage except to generator.

November 26, 2.44 P.M.; automatic alarm; 562 Atlantic avenue; burning out of armature of electric motor. No damage except to motor.

December 3, Quincy street, tree fire; arcing and flashing at points of contact between high potential arc light wire and tree; storm in progress at the time. Damage confined to slight burning of tree.

December 5, 10.40 A.M., Beverly street, near Causeway; burning of top of wood arc-lamp pole as result of grounding current or possibly a loose connection at switch at base of gooseneck. Ladder 1 and Chemical 1 called on still alarm.

December 10, Rutherford avenue, opposite City stables, Charlestown; telephone wire fell and came in contact with a high potential arc-light circuit, causing arcing, flashing and burning off of arc-light wire. No damage except to wires. Ladder 9 called on still alarm.

December 26, 6.52 P.M., Box 50, 69 Essex street; fire in basement due to an automatic rheostat failing to work properly, several coils being left in circuit overheating and igniting insulation of leading-in wires, fire being communicated to neighboring woodwork.

December 29, 7 P.M., Andrew square; arcing wires reported by Fire Department. Trouble found to be caused by an unused wire which broke and fell, coming in contact with high potential arc wire on Southampton street, near Andrew square. Arcing and flashing took place at point where same wire was in contact with wet pole in Andrew square.

January 9, 176–180 High street; slight fire in rheostat, used in connection with 3 horse-power motor. No damage except to rheostat. Members of Ladder 8 called on still alarm.

January 16, about 2.47 A.M., near Pleasant-street entrance to subway; burnout occurred in underground cables of the Boston Elevated Railway Company. Damage confined to five cables.

January 31, about 6.38 P.M., subway, Scollay square station; iron air-pipe became detached from bottom of car, fell across third rail and running rail of system, short circuit resulting; circuit breakers opened. Damage confined to air-pipe system of car.

ACCIDENTS TO PERSONS DUE TO ELECTRICITY.

March 31, about 8.15 P.M., Albert D. Bullard, of No. 147 Readville street, Readville, Mass., was crowded or fell, from station platform, at the Dover-street station of the Boston Elevated Railway system, coming in contact with third rail and sustaining a severe burn on the right buttock

March 31, Robert Randall, 12 years of age, of No. 32 Tremlett street, climbed a pole belonging to the New England Telephone and Telegraph Company, situated on the rear corner of the old Walter Baker estate, Washington street, Dorchester, came in contact with a so-called 2,300-volt circuit, received a severe shock, and was thrown or fell, to the ground. In addition to injuries received from fall he received bad burns on the right hand, a burn on the thumb and across the palm of left hand.

April 3, about 12.15 P.M., Ernest Basford, a painter, while in the act of painting a New England Telephone and Telegraph Company pole, in front of No. 83 Humboldt avenue, received a shock of electricity, causing him to fall to the ground, a distance of from 15 to 20 feet. Shock was received by coming in contact with span-wire of the street railway system, same being electrically charged. Injuries sustained were result of fall.

April 6, about 8.45 A.M., W. A. Combie, wireman, in the employ of the Boston Elevated Railway Company, while at work in their Neponset car-house, received a burn to thumb of his left hand, as result of a short circuit, caused by screw-driver, with which he was pushing live wires into a junction box, cutting through insulation and coming in contact with bare conductor, at the same time screw-driver coming in contact with the edge of junction box.

May 24, about 2.30 P.M., Main street, Charlestown, near Thompson square; Martin Green and Richard Powers, employees of the Boston Elevated Railway Company, while at work on ladders placed against iron girders under the elevated structure, received injuries as result of a short circuit by a tool with which they were at work coming in contact with a feed cable and iron work of structure simultaneously. Powers was badly burned about the face, neck, breast and

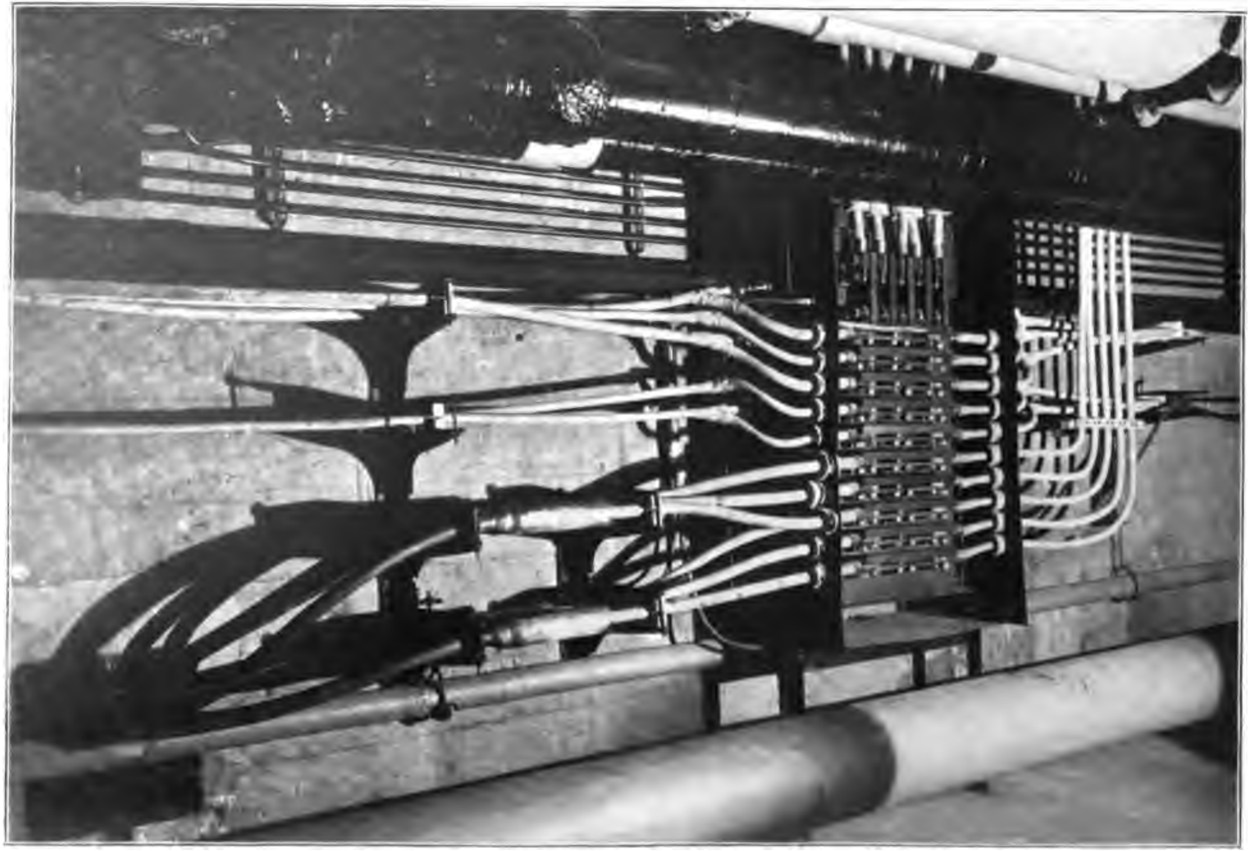

Plate No. 11. — Feeder junction box, in tunnel, Harvard Medical School.

hands and was thrown or fell from ladder to the ground. Green was so severely burned that he died from the effects of same about a week later at the Relief Hospital, where he had been taken for attention.

August 6, 1.50 P.M., Mr. Albert Anderson, while at work in twelfth station of the Edison Electric Illuminating Company, Chatham street, came in simultaneous contact with some grounded metal work and with live metal work on 6,900-volt apparatus, back of switchboard. He received burns on left forefinger and first joint of second finger, burn on outside of left forearm and burn on inside of right elbow, also badly lacerated scalp and numerous bruises on legs and body as result of fall.

August 15, about 11 A.M., Herbert B. Smith, an employee of the Edison Electric Illuminating Company, while at pole opposite No. 4 Central square, East Boston, came in contact with conductor of a 2,300-volt A. C. circuit. Mr. Smith received burns on both hands and fell to ground, death resulting.

September 18, about 7.50 P.M., T. F. Foley, an employee of the Edison Electric Illuminating Company, while descending street arc-lamp pole, opposite 45 Utica street, received a slight shock and fell to the ground a distance of about 10 feet. He sustained a very slight burn to the right hand and bruises to the feet, he landing on same. Current was derived from circuit-feeding lamp on wood pole which he was descending at the time; current evidently passing through Mr. Foley to the ground by means of a grounded unused gas bracket projecting from building to within a few inches of arc-light pole, with which bracket Mr. Foley must have come in contact at time of accident.

October 18, at about 3.40 P.M., Albert Pfefferle, a battery man employed by the Edison Electric Illuminating Company, while at work in the battery-room of their fifth station on West Canton street, received severe burn to his right hand and arm as result of a short circuit caused by iron bar which he was using at the time, making simultaneous contact between positive and negative sides of system.

October 22, James Hunter, an employee of the Boston Elevated Railway Company, while at work installing and testing apparatus in snow-plough at Grove Hall car barn, caused a short circuit, as result of which he received burns to hand. Injury not serious.

January 4, about 6 P.M., Charles A. Patterson, residing at No. 7 Boylston place, an operator in the dynamo room at Head-place station of the Edison Electric Illuminating Company, while attempting to remove a broken carbon brush on 250-volt generator end of a motor generator, was severely injured about the eyes by flash of short circuit, caused by piece of brush falling on commutator of machine.

January 8, about 7 P.M., Joseph P. King, an employee of the Edison Electric Illuminating Company, received severe shocks and burns by coming in contact with 6,900-volt apparatus at the Hawkins-street station.

January 20, shortly after 8 P.M., John L. McLellan, an inspector or patrolman in the employ of the Edison Electric Illuminating Company, while at work at street lamp-pole, corner North Market street and Faneuil Hall square, received severe shock, also a burn to the inside of right hand.

WORK OF INTERIOR DIVISION.

Inspection of Interior Wiring of Buildings, Showing Work Performed for Five Years.

	1902.	1903.	1904.	1905.	1906.
Notices of new work received	10,272	8,590	7,983	9,317	10,412
Number of buildings, wiring completely examined	496	487	524	590	1,173
Incandescent lights examined	394,234	330,050	611,778	686,231	716,137
Arc lights examined	10,882	2,716	5,738	6,028	4,469
Motors examined	3,006	2,465	2,966	3,006	4,619
Total H. P. of motors examined	12,531	11,151	11,790	11,667	21,725
Defects reported	1,810	1,274	1,073	1,289	1,425
Defects corrected	1,165	938	673	905	966
Services examined	1,174	819	571	595	780
Inspections made	23,962	19,635	19,224	23,588	27,286
Isolated plants in this city	283	274	274	276	298
Isolated plants inspected	24	32	14	4	90

Number and Classification of Fires, etc., due to Electrical Causes.

	1902.	1903.	1904.	1905.	1906.
Fires on outside of buildings	3	2	5	4	1
Fires in the interior of buildings	18	32	28	20	14
Fires on roofs of buildings	....	....	....	....	... .
Fire on poles	8	2	5	3	2
Bridge fires	1	3	3	4	4
Burn-outs	....	....	....	....	....
Deaths	2	....	3	2	2
Injuries	13	7	15	17	12
Manhole explosions	5	1	3	3	2
Miscellaneous	12	12	40	25	36

LIST OF WIRE DEPARTMENT EMPLOYEES, JANUARY 31, 1907.

No.	Occupation.	Salary Per Annum.
1	Commissioner	$5,000 00
1	Chief Inspector and Chief Electrician	2,600 00
1	Chief Inspector	2,000 00
1	Chief Clerk	1,600 00
1	Draughtsman	1,500 00
1	Engineer	1,500 00
5	Inspectors	1,500 00
2	Inspectors	1,400 00
10	Inspectors	1,200 00
6	Inspectors	1,100 00
1	Clerk	1,100 00
12	Inspectors	1,000 00
1	Deputy Inspector	800 00
1	Stenographer	800 00
1	Deputy Inspector	600 00
1	Telephone Operator	600 00
46		

STATEMENT OF DEPARTMENT APPROPRIATION AND EXPENDITURES FROM FEBRUARY 1, 1906, TO JANUARY 31, 1907, INCLUSIVE.

Appropriation		$64,000 00
Expenditures:		
Office, including salary of Commissioner	$9,233 78	
Interior Divison	22,763 11	
Exterior Division	28,995 18	
Telephones	559 82	
Photography and draughting	113 95	
Total amount of expenditures	$61,665 84	
Balance unexpended	2,334 16	
	$64,000 00	

DESCRIPTION OF PLATES.

Plate No. 1. — A view of the corner of Northampton street and Harrison avenue, showing the condition of the streets before the poles and overhead wires were ordered removed by the Commissioner of Wires.

Plate No. 2. — A duplicate view of the above (Plate No. 1), showing the condition of the streets after the orders of the Commissioner of Wires had been carried out and all poles and overhead wires removed.

Plate No. 3. — A view of Northampton street from a point just east of Washington street, showing the condition of the street before the poles and overhead wires were ordered removed by the Commissioner of Wires.

Plate No 4. — A duplicate view of the above (Plate No. 3), showing the condition of the street after the order of the Commissioner of Wires had been carried out and all poles and overhead wires removed.

Plate No. 5. — A view of Harrison avenue near East Newton street looking north, showing the condition of the avenue before the poles and overhead wires were ordered removed by the Commissioner of Wires.

Plate No 6 — A duplicate view of the above (Plate No. 5), showing the condition of the avenue after the orders of the Commissioner of Wires had been carried out and all poles and overhead wires removed.

1 Reversing Key.
1 Lamp-stand and Scale.
1 Shunt Coil.
1 Set Double Connector Posts.
2 Horses.
2 Express Wagons.
3 Business Wagons.
1 Sleigh.
4 Sets of Harness.
4 Robes.
9 Blankets.
1 Goddard Buggy.
1 Camera complete.
Miscellaneous tools used in connection with overhead construction.
Draughting Instruments.

ALLIED PRINTING TRADES UNION LABEL COUNCIL BOSTON MASS 21

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1906

ANNUAL REPORT

OF THE

WIRE DEPARTMEN

FOR THE

YEAR 1907

BOSTON:
MUNICIPAL PRINTING OFFICE
1908

ANNUAL REPORT

OF THE

WIRE DEPARTMENT

FOR THE

YEAR 1907

BOSTON
MUNICIPAL PRINTING OFFICE
1908

1 Dec. 1910
DEPARTMENT OF ARCHITECTURE,
HARVARD UNIVERSITY.
Gift of
The Department

Office of the Commissioner of Wires,
11 Wareham Street, Boston, February 1, 1908.

Hon. George A. Hibbard,

Mayor of the City of Boston:

Sir, — In compliance with the ordinances, I herewith submit the annual report of the Wire Department, in which is shown the appropriation, expenditures of the department and the work performed from February 1, 1907, to February 1, 1908.

There are a few poles now standing in the prescribed district, the reason for same being that the companies interested in said poles have been unable to get grants from the Board of Aldermen for locations on side streets which would provide for their service to the public. Under the existing conditions, and as provided for by the law, it has been deemed better to permit such poles to remain for a reasonable time than take drastic action which would necessarily discommode that portion of the public served by same.

As provided for in chapter 249 of the Acts of 1898, the underground district for 1908 has been prescribed, same being Harrison avenue, from Northampton street to Zeigler street, and Warren street, from Washington street to Grove Hall, a total distance of 10,540 feet, or 20 feet less than the limit prescribed by law.

These streets were selected not only because a large amount of wire (some of which carries extra high potential current) and many poles will be removed, but also because it is a natural and important extension of the existing underground system.

I respectfully call your attention to the fact that the provisions of chapter 249, Acts of 1898, relating to the placing of wires underground, expires next year, and to the advisability of some action being taken toward the extension of the underground acts beyond that time.

Chapter 268 of the Acts of 1898, relating to the inspection of wires in buildings, provides for no penalty for noncompliance with the requirement in same calling for a notification of work to be sent to this department. This omission should be rectified.

During the year there has been no electrical fire due to wiring approved by this department, and I am pleased to be able to report that, with the exception of four fires in stations of the public service corporations, with a reported insurance loss of $11,383, the total reported insurance loss for the electrical fires in this city during the year was but $166.

As has been noted in previous reports, the records of this department (which are very valuable) are not properly protected, and a fire-proof vault should be provided.

Material aid in the prosecution of its duties has been given this department by the spirit of fairness shown by the companies and other parties with whom the department has had business.

The duties under the law relative to inspections of theatres, places of amusement and public halls have materially increased during the year, owing to the many so-called moving picture places of amusement opened during that time.

Following are the details of the department work.

Yours respectfully,

James E. Cole,
Acting Commissioner of Wires.

EXTERIOR DIVISION.

The prescribed district for 1907 comprised the following streets or portions of streets: That portion of Main street, Charlestown, from Charles street (where the 1905 district ended) to the Somerville line; Dudley street, Roxbury, from Magnolia street (where the 1906 district ended) to Columbia road; Congress street, South Boston, from Fort Point Channel bridge to A street, and A street from Congress street to West First street; and Tremont street, Roxbury, from Cottage place (the end of the 1902 district) to Columbus avenue, thence along Columbus avenue to Old Heath street, making a total distance of ten thousand eight hundred and ten (10,810) feet, exceeding the distance of two miles as authorized under chapter 249, Acts of 1898, by two hundred and fifty (250) feet.

That portion of Main street, Charlestown, prescribed, contained thirty-eight (38) poles, belonging to the following named companies: twenty-three to the Charlestown Gas and Electric Company and fifteen to the New England Telephone and Telegraph Company.

That portion of Dudley street, prescribed, contained twenty-six (26) poles, belonging to the following named companies: eleven to the Edison Electric Illuminating Company, thirteen to the New England Telephone and Telegraph Company and two to the West End Street Railway Company.

That portion of Congress street and A street, South Boston, prescribed, contained fifty-nine (59) poles, owned as follows: twenty-eight by the Postal Telegraph-Cable Company, and thirty-one by the New England Telephone and Telegraph Company.

That portion of Columbus avenue and Tremont street, prescribed, contained seventy (70) poles, owned as follows: thirty-six by the New England Telephone and Telegraph Company, and thirty-four by the Edison Electric Illuminating Company. The New England Telephone and Telegraph Company poles in this case being used jointly with the West End Street Railway Company.

Overhead, attached to poles or crossing Main street, between Charles street and the Somerville line, there was about sixty-one thousand eight hundred (61,800) feet of wire, owned by the Edison Electric Illuminating Company, the Charlestown Gas and Electric Company, the New England Telephone and Telegraph Company, the Boston & Maine Railroad, the West End Street Railway Company, the Postal Telegraph-Cable Company, the Fire Alarm Branch (Boston Fire Department) and the Western Union Telegraph Company.

Overhead, attached to poles or crossing Dudley street, between Magnolia street and Columbia road, there was about sixty thousand two hundred (60,200) feet of wire, owned by the Edison Electric Illuminating Company, the New England Telephone and Telegraph Company, the West End Street Railway Company, the Postal Telegraph-Cable Company, the Fire Alarm Branch (Boston Fire Department), the Police Signal Service (Boston Police Department), and the Western Union Telegraph Company.

Overhead, attached to poles or crossing Congress street, between A street and the bridge, and on A street, between Congress street and First street, there was about twenty-eight thousand (28,000) feet of wire, owned by the New England Telephone and Telegraph Company, the Edison Electric Illuminating Company, the Postal Telegraph-Cable Company, the Fire Alarm Branch (Boston Fire Department), the Police Signal Service (Boston Police Department), the Boston District Messenger Company, the Mutual District Messenger Company, the Boston Automatic Fire Alarm Company, the American District Telegraph Company, and the United Button Company.

Overhead, attached to poles or crossing Tremont street and Columbus avenue, between Cottage place and Old Heath street, there was about one hundred and forty-seven thousand (147,000) feet of wire, owned by the New England Telephone and Telegraph Company, the Edison Electric Illuminating Company, the Postal Telegraph-Cable Company, the Police Signal Service (Boston Police Department), the Fire Alarm Branch (Boston Fire Department), the West End Street Railway Company and the Western Union Telegraph Company.

This gives us a total of upwards of two hundred and ninety-seven thousand (297,000) feet, or over fifty-six (56) miles of wire over the streets ordered cleared of overhead wires during the year 1907, not including the trolley and span wires of the Boston Elevated Railway Company.

About ten thousand six hundred (10,600) notices of new overhead work have been received during the year, each requiring special inspection by the overhead district inspectors aside from their regular district work and inspections; as

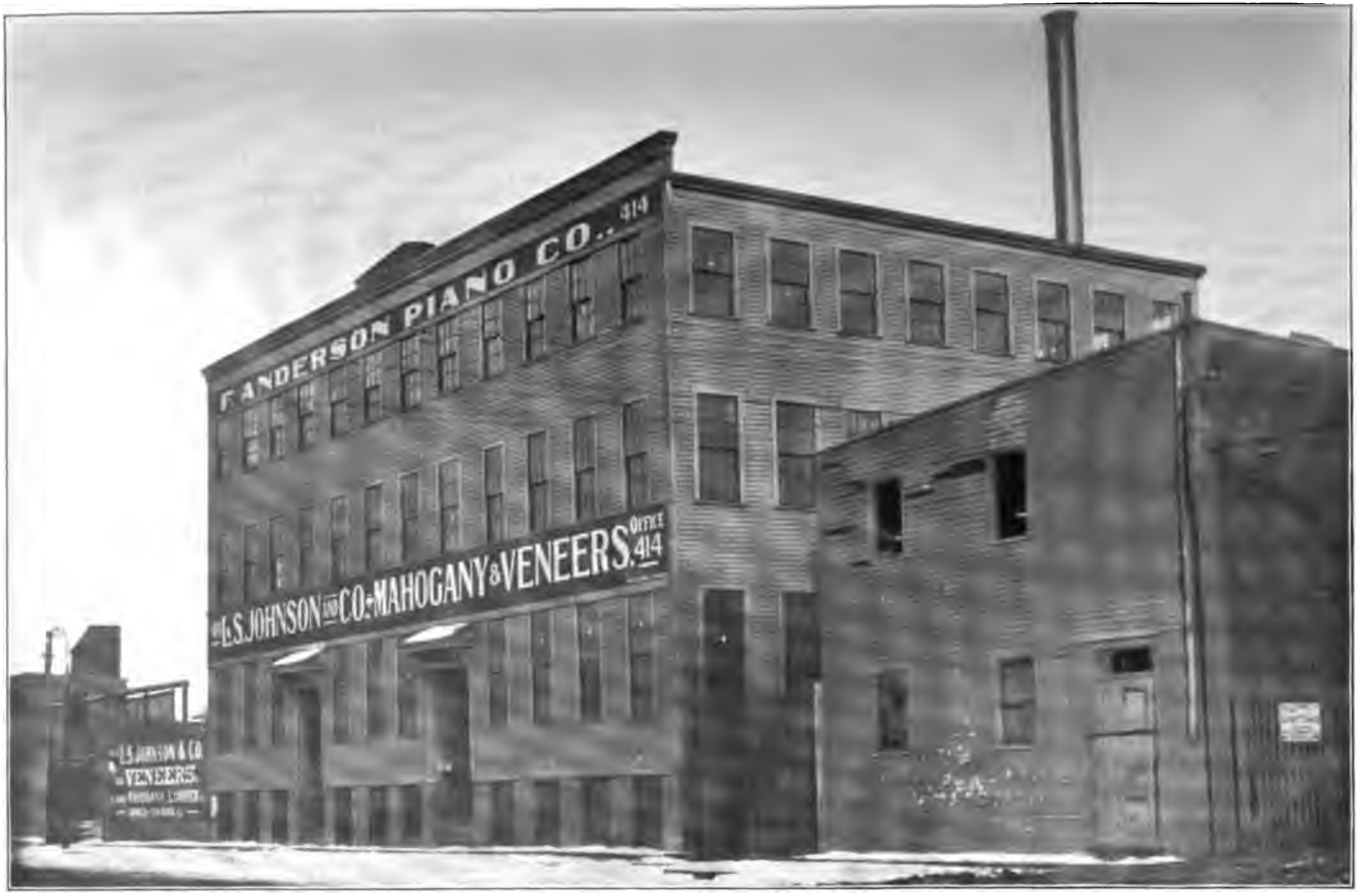
F. ANDERSON PIANO CO.. 414
L.S. JOHNSON AND CO. MAHOGANY & VENEERS. OFFICE 414
L.S. JOHNSON & CO.
VENEERS

Plate No. 2.—Albany street, opposite Randolph street, showing conditions after wires had been removed.

much of the time as possible is devoted to the inspection of old work, and that which is not up to our rules and requirements is being replaced by approved form of construction as rapidly as conditions will admit.

The attachment of the wires of one company to the poles of another is receiving careful attention, notice being received of all proposed attachments of this nature, when the ground is gone over and special inspection made to see if such proposed attachments can be made in conformity with the ordinances of the city and the rules and requirements of this department, before such applications meet with the approval of this office.

The same care has been taken in selecting new pole locations as has been followed for the past few years, the various companies making no selections for new locations without a representative of this department being present, thus the least objectionable site is selected, taking into consideration all existing conditions, and no location is approved by this office without it having been selected in this manner.

The erection of derricks, stretching derrick guys, moving buildings, etc., have all received due attention of the department, and no electrical accident has resulted during the past year on this kind of work.

There have been quite a number of cases during the past year where the district inspectors have discovered private wires run over public streets and on examination of construction of this kind it is found that the lines are run in a defective if not in a dangerous manner, and were erected without the necessary permission of the Board of Aldermen, consequently without inspection by this department. In cases of this nature the owners of the lines have been directed to apply to the Board of Aldermen for a permit to maintain the same.

Our stencilled numbers on the poles are used by companies and individuals alike for reference in looking up locations, defects, corrections, foreign attachments, renewals, accidents, etc., thus demonstrating the need of constantly renewing the numbers, that no mistakes may occur through our neglect. This emphasizes the importance of our pole survey and atlas records begun in 1900.

On Hampden street, between Albany and Dudley streets, and on Dudley street, between Hampden and Magnolia streets, a number of poles yet remain standing which should have been removed during the year 1906; on these poles are a few wires used to furnish telephone service to subscribers of the New England Telephone and Telegraph Company.

The cause of the poles remaining is mainly due to the failure of the Board of Aldermen to approve of pole locations as selected by the New England Telephone and Telegraph Company for distribution purposes.

By order of the Board of Aldermen, passed a few years since, the Superintendent of Lamps submits all proposed arc-light post locations to the Commissioner of Wires for his approval electrically; this was deemed advisable, owing to the fact that lamp-posts had been set, in a number of cases, in close proximity to high potential and other wires and were a source of more or less inconvenience and annoyance to the companies owning the wires, as well as a source of danger to linemen and lamp trimmers.

It is also found that lamp-posts have in the past been set in close proximity to other grounded structures or fixtures such as, old gas brackets, metal awnings, guy-wires, etc. Cases have come to our notice where metal awnings have been erected around street arc-lamps, already in position, at such a height that a person might stand upon the same and easily reach the wires feeding the lamp; one case of this nature being the cause of an accident, by a man being in contact with awning and lamp fixture at the same time.

Exceptional care has been necessary in the examination of the underground plans filed by the various companies, owing, not only to the crowded condition of many of the streets, but to the fact, that, there being so much to look up in making up these plans, and much of the data, of necessity, being taken from numerous separate plans made by many different persons, the pipes, conduits, etc., are oftentimes found to have been plotted in other than their correct locations, and, in some cases, whole lines of pipes or conduits have been entirely omitted, so that in order to intelligently approve the plans for this kind of work they must be compared and checked in every manner that our facilities permit, and in some cases it is even necessary to have a street survey made by employees of this department before such approval can be given.

We are realizing the need of this more and more as our plans are becoming of more value, being consulted almost daily by engineers or representatives of the electrical companies, other city departments and various individuals desiring to ascertain what is in the streets.

In this report will be found a plan, showing the poles and wires on and over the streets in the prescribed district for the year 1908, also photographs of portions of Albany street,

Plate No. 3.—Meridian street, East Boston,

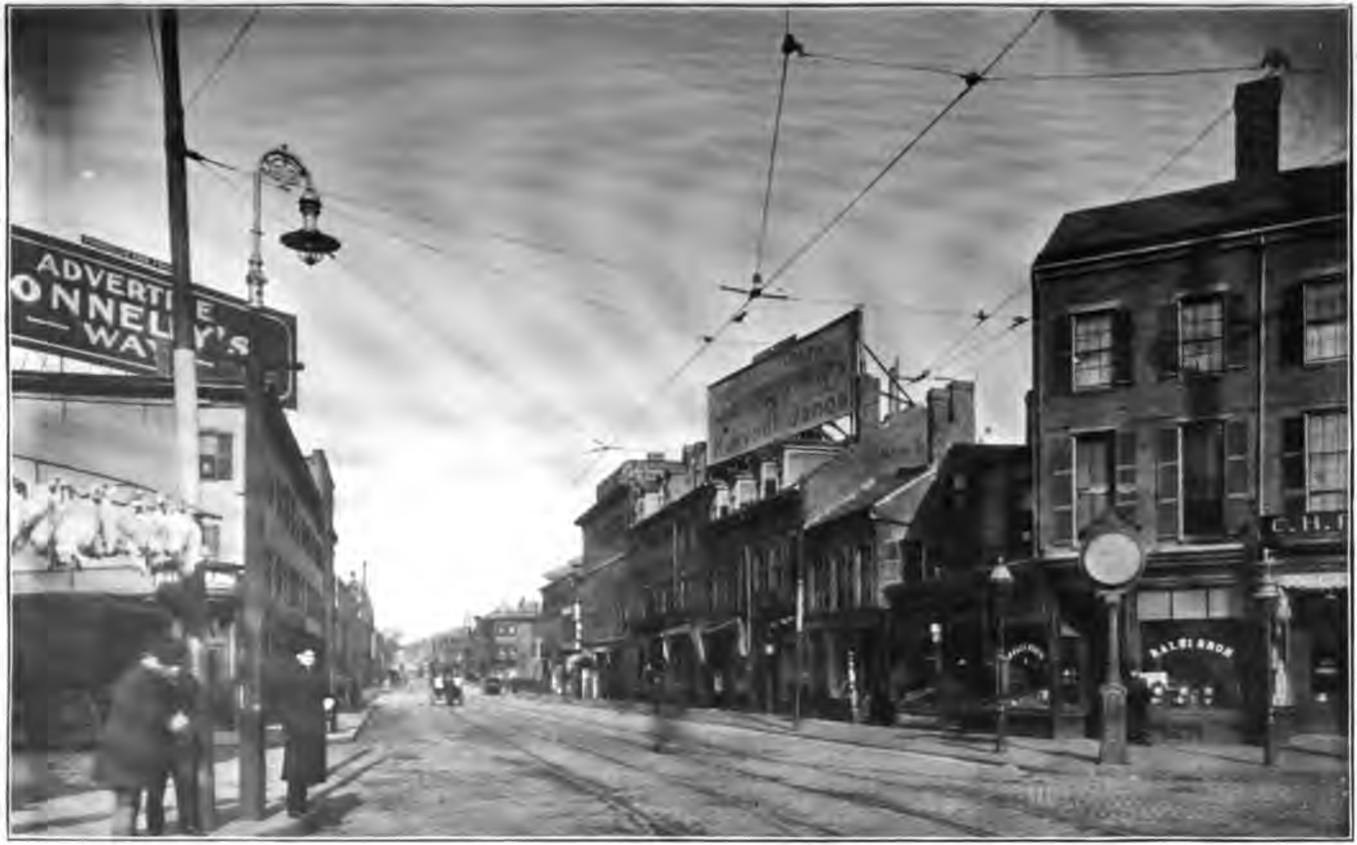

Plate No. 4. — Meridian street, East Boston, from Maverick square, without wires.

Meridian street, Maverick square and Central square, showing the appearance of the streets before and after the poles and wires have been removed; also a photograph of a bank of three 100 K. W. and one 10 K. W. transformers recently installed on private property, off Dorr street, South Boston.

Table showing the overhead work from February 1, 1907, to January 31, 1908, inclusive:

Permits granted by the Board of Aldermen to set poles	18
Number of poles included in the above orders	49
Permits granted by the Board of Aldermen to remove poles	22
Number of poles included in the above orders	47
Number of streets and avenues included in above orders	32
Number of new poles set in new locations	38
Number of poles removed	243
Number of new pole locations selected	365
Number of poles reset	609
Number of poles now standing	14,933
Amount of wire removed by the Wire Department (in feet)	291,860
Fixtures and outriggers removed by the Wire Department	7
Defect notices sent out	1,693
Number of defects included in these notices	3,887
Number of defects corrected	4,052
Notices of new work and special inspections	10,599
Amount of wire removed by owners, as reported (in feet)	4,442,947

Orders granted by the Board of Aldermen which come under the jurisdiction of this department, as they pertain in one way or another to the overhead or underground wires, but are not included in the classification as recorded above:

Police signal-post locations	9
Fire-alarm post and test-box locations	7
Extension of time on permits previously issued	3
Attachments of one company's wires to poles of another	4
To cross streets with overhead wires	7
To cross streets with underground conduits	1
Extension of street railway tracks, etc.	17
Erection of derricks, stretching guy-ropes, etc.	18
Moving buildings, etc.	13
A total of	79

The following is a list of the companies and individuals doing underground work during the year 1907:

For Electric Light and Power Purposes.

Boston Elevated Railway Company.
Boston Consolidated Gas Company.
Charlestown Gas and Electric Company.
Edison Electric Illuminating Company.
Joseph F. McGreenery.

For Telephone, Telegraph, Signalling and Other Purposes.

Boston Auxiliary Fire Alarm Company.
Boston Low Tension Wire Association.
Boston Automatic Fire Alarm Company.
Brookline Wire Department.
Fire Alarm Branch (Boston Fire Department).
Massachusetts Telephone and Telegraph Company.
New England Telephone and Telegraph Company.
Police Signal Service (Boston Police Department).
Postal Telegraph-Cable Company.
Western Union Telegraph Company.

During the year the various companies have opened one hundred and sixteen (116) different streets and avenues within the city limits for the purpose of building new conduits, extending or enlarging their existing conduits; seventy-seven (77) of these were in the original underground district, or the congested portion of the city lying north of Dover and Berkeley streets, while the remaining thirty-nine (39) were scattered throughout the rest of the city.

The electrical approvals of the department for opening the streets for underground electrical work during the year numbered one thousand four hundred and ninety-seven (1,497), and the underground district inspectors have made over nine thousand four hundred (9,400) inspections on these various permits for street openings.

The companies have as usual provided for their distribution points in the new underground districts and other parts of the city, by establishing terminal poles at intervals along the lines of conduit. These terminals are located as follows:

The Boston Elevated Railway Company (So many)

Dudley street, opposite Wendover street.
Stoughton street, near Columbia road.
Columbus avenue, at New Heath street.
Columbus avenue, at iron pole 21–188.

Columbus avenue, at iron pole 21–211.
Columbus avenue, at iron pole 21–223.
Columbus avenue, at iron pole 21–241.
Centre street, at Columbus avenue.
Tremont street, at Terrace street.
L street, South Boston, pole opposite Edison Electric Illuminating Company station.
Huntington avenue, at Irvington street.
Main and Caldwell streets, Charlestown.

The Edison Electric Illuminating Company.

(See [illegible])

Albany street, near Hampden street.
Alexander street, near Dudley street.
Massachusetts avenue and Commonwealth avenue.
Chelsea street near Maverick square.
Dudley street, at No. 767.
Monadnock street, near Dudley street.
Clifton street, near Dudley street.
Eustis street, near Hampden street.
Columbus avenue, opposite Ferdinand street (private property)
Columbus avenue, near No. 1257 (private property).
Columbus avenue, near No. 1267 (private property).
Columbus avenue, near Roxbury Crossing.
Commonwealth avenue and Massachusetts avenue.
Lexington street, at No. 8.
Lexington street, near Meridian street.
Linden Park street and Tremont street.
New Heath street, near Columbus avenue.
Norfolk avenue and Hampden street.
Pembroke street, at No. 45.
Pinckney street and Brimmer street.
Dudley street, near railroad bridge (private property).
Zeigler street and Harrison avenue.
Texas street and Tremont street.
Ramsey street, near Dudley street.
Richards street, at A street.
Roxbury street, at No. 2.
Roxbury street, at No. 92.
Roxbury street, at No. 304.
Stoughton street and Columbia road.
West First street, at A street.

The New England Telephone and Telegraph Company.

Cambridge street (private property), at No. 291.
East Cottage street, near Dudley street.
Cambridge street, opposite Empire street.
Brighton avenue, opposite Linden street.
Brighton avenue, opposite Sylvester street.
Brighton avenue, opposite Reedsdale street.

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Harvard avenue, opposite Cambridge street.
Linden street, opposite Gardner street.
Dorchester avenue, at Dracut street.
Dorchester avenue, at Rowena street.
Northampton street, in City Hospital yard.
Dudley street, at No. 638.
Dudley street, at No. 642.
Congress street, opposite Freight House No. 6.
Centre street and Columbus avenue.
Maverick street and Orleans street.
Old Heath street and Columbus avenue.
Main street, at No. 529 (private property).
Norway street, near Massachusetts avenue.
Craigie's bridge, at Charles street.
Williams street and Washington street.
Simmons and Linden Park streets.
Hyde Park avenue and Patten street.
Hyde Park avenue and Walk Hill street.
Hyde Park avenue, opposite No. 103.
Corey road, at Brookline line.
Harvard street, pole No. 5180.
Harvard street, at Algonquin street.
Park street, at Joiner street.
Hastings and Centre streets.
Centre and Pond streets.
Chelsea street, pole in Navy Yard.
New Heath street and Columbus avenue.
Central avenue, at bridge.
Kilton street, at Harvard street.
River street and Central avenue.
Washington street, at Corey road.
Columbus avenue, near No. 1208 (private property).
A street, near No. 181 (private property).
Alexander and Magnolia streets.
Bird and Magnolia streets.
Columbus avenue, near No. 1239 (private property).
Centre and Willow streets.
South and Bradford streets.
Roberts and Brookfield streets.
South and Congreve streets.

The Postal Telegraph-Cable Company.

Rutherford avenue and Cambridge street.
Alford and Main streets.
Mystic avenue and Dorrance street.
Stoughton street and Columbia road.
Railroad bridge and Columbus avenue.
Columbus avenue, at Roxbury street.
Southampton street, near Albany street (B. L. T. W. A.).

The Charlestown Gas and Electric Company.

Alford street and Main street.
Cambridge street and Main street.
Gardner street and Main street.
Cambridge street and Railroad bridge.
Mystic avenue and Main street.

The Fire Alarm Branch, Boston Fire Department, have made eleven (11) underground pole connections and have set up and connected with the manholes of the New England Telephone and Telegraph Company two (2) of their regulalion lamp and signal-box posts and three (3) test boxes.

The Police Signal Service, Boston Police Department, have made five (5) underground pole connections and have set up and connected with the manholes of the New England Telephone and Telegraph Company thirteen (13) of their regulation iron signal-box posts.

In the tables following, in the work of the Edison Electric Illuminating Company, it will be noted that a large number of the places named are at corners of streets, instead of between certain streets; these cases are where the company has connected the solid system with the drawing in system, or the Edison system with the old manholes formerly owned and operated by the Boston Electric Light Company, but now consolidated with the Edison Electric Illuminating Company.

New conduits have been built during the past year by the various electrical companies in the following named streets and avenues. This tabulation also shows between what points the conduits have been constructed and the number, size and style of the pipes or ducts used in constructing the same.

Solid System of the Edison Electric Illuminating Company.

Street.	From	To	Size and Style.	
Allen	No. 23	No. 33	No. 200	Tube.
Anderson	At Phillips		200	"
Atlantic ave.	At Essex		250	"
Atlantic ave.	At Kneeland		250	"
Atlantic ave.	At Congress		350	"
Atlantic ave.	At Lewis wharf		500	"
Atlantic ave.	At Richmond		500	"
Atlantic ave.	At T wharf		350	"
Beacon	At Joy		350	"
Beacon	At Walnut		350	"
Bedford	At Columbia		350	"
Berkeley	Chandler		350	"
Berkeley	Providence		350	"
Beverly	Traverse		200	"
Blackstone	At No. 100		200	"
Blackstone	At North		350	"
Bowdoin sq.	At Bulfinch		350	"
Cambridge	At Garden		350	"

Solid System of the Edison Electric Illuminating Company.—Continued.

Street.	From	To	Size and Style.	
Cambridge	At North Grove		No. 750	Tube.
Cambridge	At Ridgeway lane		200	"
Canal	At Market		200	"
Carver	At Eliot		200	"
Causeway	At Friend		200	"
Causeway	At Portland		200	"
Chambers	At Spring		200	"
Charles	At Pinckney		200	"
Charter	At Hanover		200	"
Chauncey	At Exeter pl.		500	"
Columbus ave.	At Berkeley		350	"
Commercial	At Battery		350	"
Commercial	At Fleet		500	"
Commercial	At Hanover		350	"
Commonwealth ave	At Deerfield		200	"
Congress	At Franklin		250	"
Congress	At High		350	"
Congress	At Purchase		350	"
Congress	Opposite Stillings		350	"
Cooper	At North Margin		200	"
Devonshire	At State		500	"
Dewey sq.	At Atlantic ave.		350	"
Dover	At Harrison ave.		350	"
Eliot	At Warrenton		200	"
Essex	At South		350	"
Franklin	Opp. Devonshire		350	"
Franklin	At Hawley		350	"
Friend	At Market		200	"
Fruit	At North Grove		200	"
Green	At Leverett		200	"
Green	At Pitts		350	"
Green	At Staniford		200	"
Hanover	At Salem		200	"
Harrison ave.	At Broadway		250	"
Harvard	At Washington		200	"
Hereford	At Boylston		350	"
High	At Fort Hill sq.		350	"
High	At Purchase		350	"
Henchman	At Charter		200	"
Hollis	Tremont	Burroughs pl.	200	"
Howard	At Stoddard		350	"
Huntington ave.	At Dartmouth		350	"
India	At Central		200	"
Joy	At No. 42		200	"
Joy	At No. 75		200	"
Leverett	At Charles		200	"
Lynde	At Public Library		200	"
Merchants row	At Clinton		500	"
Milk	At Arch		500	"
Milk	At Batterymarch		250	"
Milk	At Kilby		250	"
Newbury	At Hereford		350	"
North	At Cross		200	"
North Grove	At Fruit		200	"
Oliver	At Fort Hill sq.		350	"
Oliver	At Purchase		350	"
Phillips	At No. 43 Anderson		200	"
Prince	At Salem		200	"
Richmond	At North		200	"
Salem	At Bartlett pl.		200	"
Salem	At Endicott		200	"
South	At Tufts		350	"
Spring	At Poplar		200	"
Sudbury	At Bowker		500	"
Sudbury	At Friend		200	"
Traverse	At Friend		200	"
Tremont	At Compton		750	"

CENTRAL

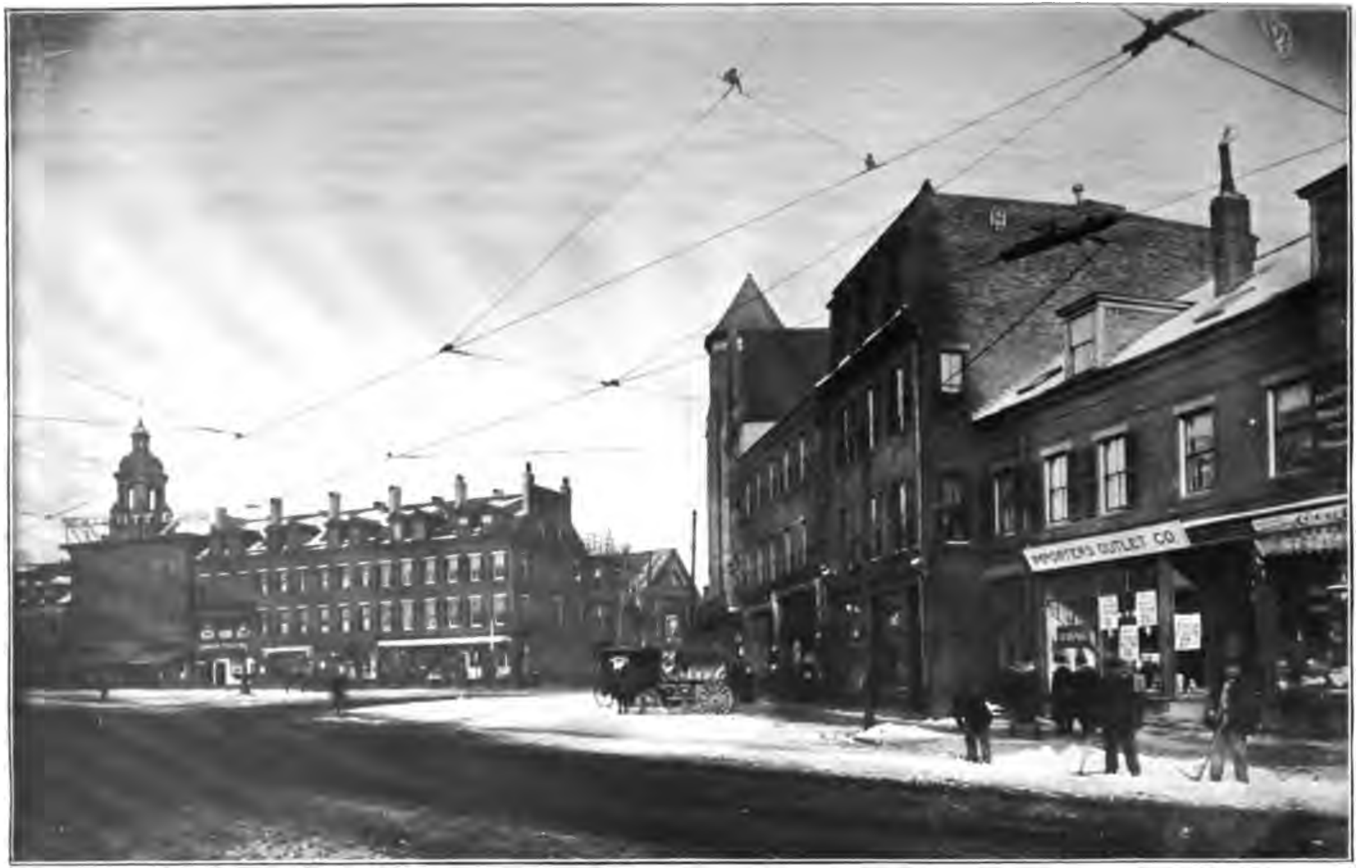


Plate No. 6. — Central square, East Boston, from Meridian street, without wires.

Solid System of the Edison Electric Illuminating Company.—Concluded.

Street.	From	To	Size and Style.	
Tremont	At Hollis		No. 200	Tube.
Washington	At Compton		200	"
Washington	At Dedham		350	"
Washington	At Endicott		350	"
Washington	At Hollis		200	"
Washington	Opposite No. 15		200	"
Washington	At Williams ct.	Cornhill	200	"
Winter	At Music Hall pl.		350	"
Winter	At Winter pl.		200	"

Drawing-in System, Edison Electric Illuminating Company.

Street.	From	To	No. of Ducts.	Type.
A	Wormwood	First	4	Vit. clay
Atlantic ave.	Opposite Pearl		6	"
Beach	At Harrison ave.		1	Wgt. iron
Beacon	Bowdoin	Walnut	2	Clay
Beacon	At Commonwealth ave.		1	Iron
Bedford	At Lincoln		1	"
Brunswick	No. 56	Warren	1	"
Cambridge bridge	Charles		1	"
Canal	At Traverse		1	"
Columbia rd.	At Bellevue		1	"
Columbus ave.	At Roxbury		3	"
Columbus ave.	At Tremont		2	"
Columbus ave.	Tremont	Old Heath	8	Clay
Commercial	At Hanover		2	Fiber
Congress	At Stillings		1	Iron
Cooper	At Lynde		1	"
Dartmouth	At Stuart		1	"
Dock sq.	At Devonshire		1	"
Dudley	Magnolia	Nonquit	4-8	Clay
Dudley	Nonquit	Columbia rd.	8	"
Endicott	At Stillman		1	Iron
Essex	At Columbia		1	"
Essex pl.	At alleyway		1	"
Falmouth	At Norway		1	"
Fort Hill sq.	Oliver	High	1	"
Franklin	At Arch		1	"
Fulton	At Ferry			Manhole
Hanover	At Friend		1	Iron
Hanover	At Union		1	"
Harrison ave.	At Kneeland		1	"
Hawley	At Hawley pl.		2	"
Howard	At Somerset		2	"
Kneeland	At Albany		4	Clay
Leverett	At Chambers		2	"
Lowell	At Minot		2	Iron
Massachusetts ave.	Boylston	Newbury	6	"
Neptune rd.	Bennington	Orleans	1	"
North	At Fleet		1	"
Norway	Huntington ave.	Falmouth	1	"
Perry	At Washington		1	"
Prentiss	Tremont	Columbus ave.	4	Clay
Purchase	No. 43	Belcher lane	2	Fiber
Shawmut ave.	At No. 1 Pleasant		1	Iron
Spring	Poplar	Leverett	2	Clay
Sudbury	Bowker	Merrimac	4	"
Tremont	At Castle		1	Iron
Tremont	At Church		1	"
Tremont	At Brookline		1	"
Tremont	At Dover		1	"
Tremont	At Eliot		1	"
Tremont	At Hollis		1	"
Tremont	At Pleasant		1	"

Drawing-in System, Edison Electric Illuminating Company.—Concluded.

Street.	From	To	No. of Ducts.	Type.
Tremont	Prentiss	Columbus ave.	8	Clay
Tremont	At West		1	Iron
Tremont	At West Canton		1	"
Tremont	At West Dedham		1	"
Union	At North		1	"
Washington	At Lotus pl.			Manhole
Washington	At Pleasant		1	Iron
Washington	At Perry		1	"
Washington	At No. 3107		1	"
Winchester	At Church		1	"

New England Telephone & Telegraph Company.

Street.	From	To	No. of Ducts.	Type.
Atlantic ave.	Congress		3	Iron
Bickerstaff	Norway		3	Clay
Cedar	No. 6	High	1	Iron
Clifton	Dudley		3	Clay
Columbus ave.	New Heath	Old Heath	3	"
Congress	Stillings	Freight house	2	"
Dorchester ave.	Congress-st. bridge		4	Iron
Dudley	Magnolia	Nonquit	6	Clay
Faneuil Hall sq.	Merchants row	Corn ct.	2	"
Franklin	Washington		21	"
Hastings	Centre		2	Wood
Linden	Gardner		1	Iron
Magnolia	No. 149	Wayland	3	Clay
Norton	Bowdoin		1	Iron
Norway	Massachusetts ave.	Bickerstaff	3	Clay
Oliver	At No. 52		96	"
Oliver	At No. 44		40	"
Phillips pl.	Dudley		1	"
Richards	A	Granite ave.	2	"
Summer	No. 316 (rear)	A	1	Iron
Wendell	Batterymarch	Oliver	30	Clay
West Boston bridge	Charles	Cambridge line	12	Wood

Boston Elevated Railway Company.

Street.	From	To	No. of Ducts.	Type.
Centre	Columbus ave.	Hogg bridge	6	Clay
Columbus ave.	Roxbury Crossing	Centre	6	"
Columbia rd.	Dudley	Hancock	4	"
Dudley	Magnolia	Columbia rd.	5	"
Main	Dorrance	Somerville line	14	"
Main	Mystic ave.		1	Iron
Massachusetts ave.	Boylston		3	"
Tremont	Linden Park	Terrace	6	Clay
Western ave.	North Harvard		1	Solid

Boston Low Tension Wire Association.

Street.	From	To	No. of Ducts.	Type.
Albany	Dover	Beach	4	Clay
Albany	Dover	Massachusetts ave.	4	"
Beach	Albany	Harrison ave.	1	Iron
Beach	Lincoln	Albany	2	"
Brookline	Albany	Private way	1	"
Devonshire	Winthrop sq.	Summer	1	"
Federal	No. 33	Franklin	2	"
Lincoln	Summer	Beach	2	"
Northampton	Albany	Division	1	"
Plympton	No. 33	Albany	1	"
Summer	Devonshire	Lincoln	1	"

Postal Telegraph-Cable Company.

Street.	From	To	No. of Ducts.	Type.
Columbus ave.	No. 1142	Roxbury	2	Iron
Dorchester ave.	Congress	Private way	1	"
Dudley	No. 778	Columbia rd.	1	"
Main	Alford	Mystic ave.	2	"
Sullivan sq.	Rutherford ave.	Alford	2	"

Charlestown Gas and Electric Company.

Street.	From	To	No. of Ducts.	Type.
Bunker Hill	Everett	Concord	1	Iron
Concord	Bunker Hill	Laurel	1	"
Main	No. 550	No. 549	2	"
Main	Charles	Somerville line	8	Clay
Mystic ave.	Main	Dorrance	1	Iron

Police Signal Service (Boston Police Department).

Street.	From	To	No. of Ducts.	Type.
Columbus ave.	New Heath		1	Iron
Main	Sherman		1	"
Main	Mystic ave.		1	"

Fire Alarm Branch (Boston Fire Department).

Street.	From	To	No of Ducts.	Type.
Bunker Hill	Engine No. 32	Main	1	Iron

Boston Auxiliary Fire Alarm Company.

Street.	From	To	No. of Ducts.	Type.
Farnsworth	N. E. T. & T. Bldg.	N.Y., N.H. & H. R.R.	1	Iron

Boston Consolidated Gas Company.

Street.	No. of Ducts.	Type.
Market, Brighton, opposite Imperial Hotel	1	Iron

Massachusetts Telephone and Telegraph Company.

Street.	From	To	No. of Ducts.	Type.
Beach	Lincoln	Utica	1	Iron

Western Union Telegraph Company.

Street.	From	To	No. of Ducts.	Type.
Summer	Dewey sq.		1	Iron

Character of Cables Used by the Various Companies.

COMPANY.	Kind of Insulation.	Sizes.
American Tel. and Tel. Co.	Paper	252 conductor.
Boston Automatic Fire Alarm Co.	Rubber	12 conductor.
Boston Auxiliary Fire Alarm Co.	Rubber	4 conductor.
Boston Consolidated Gas Co.	Rubber	No. 4, 6, 8 and 0000.
Boston Elevated Railway Co.	Rubber, paper and fiber	500,000 C.M. to 2,000,000 C.M.
Brookline Wire Department	Rubber	4 conductor.
Charlestown Gas and Electric Co.	Rubber and varnished cotton	0000, 0, 2, 4, 6.
Edison Electric Illuminating Co.	Rubber and paper	No. 6 to 1,000,000 C.M.
Fire Alarm Branch (B. F. D.)	Rubber	5, 6, 10 and 19 conductor.
Holmes Electric Protective Co.	Rubber	15, 50, 98, 126 conductor.
Massachusetts Tel. and Tel. Co.	Paper	25 pair.
McGreenery, J. F.	Rubber	No. 14 twin.
New England Tel. and Tel. Co.	Paper	15 to 480 pair.
Police Signal Service (B. P. D.)	Rubber	7 conductor.
Postal Telegraph-Cable Co.	Rubber and paper	2, 20, 25, 40 and 75 conductor.
Quincy Market Cold Storage Warehouse Co.	Rubber	00, 0000.
Western Union Telegraph Co.	Paper	20 and 30 conductor.

Table Showing the Underground Electrical Service of Boston.

	To 1907.	1907.	Jan. 31, 1908.
Feet of conduit	1,492,963	41,652	1,534,615
Feet of single duct	9,748,782	207,150	9,955,932
Feet of cable	11,935,273	485,526	12,420,799
Number of manholes	6,754	184	6,938
Number of service connections	14,367	703	15,070
Feet of solid tubing (Edison)	563,371	11,511	574,882
Distribution boxes (Edison)	498	8	506
Park boxes	145	....	145

NOTE. — Of the 11,511 feet of Edison tubing recorded above 4,836 feet is reckoned as conduit, but is not included in the 41,652 feet of conduit in this table.

Table Showing the Underground Work for the Year 1907.

COMPANY.	Feet of Conduit.	Feet of Duct.	Feet of Cable.	Number of Man-holes.	Number of Services.
Boston Automatic Fire Alarm Company	....	130	10,221	......	2
American Telephone and Telegraph Co	....	....	51,009	......	....
Boston Auxiliary Fire Alarm Company	270	270	3,750	......	....
Boston Consolidated Gas Company	4	614	609	1	* 10
Boston Elevated Railway Company	6,933	40,736	56,372	22	22
Boston Low Tension Wire Association	12,557	38,322	....	33	15
Brookline Wire Department	....	51	512	......	1
Charlestown Gas and Electric Company	2,895	14,740	14,041	17	19
Edison Electric Illuminating Company	10,919	57,609	214,449	60	378
Fire Alarm Branch (B. F. D.)	275	1,548	12,490	2	17
Holmes Electric Protective Company	....	....	1,630	......	....
Massachusetts Telephone and Telegraph Co.	240	345	* 880	1	2
McGreenery, J. F.	....	28	65	......	1
New England Telephone and Telegraph Co.	5,209	47,394	88,308	40	208
Police Signal Service (B. P. D.)	404	1,622	16,000	.....	18
Postal Telegraph Cable Company	1,775	3,575	12,710	8	9
Quincy Market Cold Storage Warehouse Co.	....	....	1,600	......	....
Western Union Telegraph Company	171	171	1,380	......	1
Totals	41,652	207,150	485,526	184	703

NOTE. — Main and feeder tube or solid system distribution boxes of the Edison Electric Illuminating Company are not included in the above figures. Amount of tube laid during the year 1907 was 11,511 feet; of this 4,836 feet is reckoned as conduit; there were 8 new distribution boxes set.

* Terminals established

Table Showing the Amount and Distribution of Boston's Electrical Power, January 31, 1905.

	Total rated Horse Power of Boilers.	Total rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of Stations.
Boston Elevated Railway Co.	28,770	54,450	48,785	449	4,899	144,920	8
Edison Electric Illuminating Co.	24,918	48,080	579,818	9,044	7,085	24,566	11
Charlestown Gas and Electric Light Co.	....	....	....	....	41	204	...
Brookline Gas Light Co.	1,000	3,100	30,000	600	72	412	1
Block Plant Electric Light Co.	273	417	5,250	....	3	16	1
Sudbury Building	202	230	727	1	26	150	1
Steam and Power Co.	267	295	4,000	400	41	214	2
Hecht Building Plant	300	200	2,400	240	31	217	1
*Isolated Plants	61,943	38,995	203,559	3,707	1,052	9,211	274
Totals	117,673	145,717	874,589	14,441	13,250	179,910	299

*The capacity of generators for isolated plants in k. w., 21,177.

January 31, 1906.

Boston Elevated Railway Co.	28,770	54,450	44,670	496	4,956	153,860	8
Edison Electric Illuminating Co.	22,743	44,840	635,233	9,851	7,455	28,030	13
Charlestown Gas and Electric Light Co.	....	....	....	....	54	261	....
Boston Consolidated Gas Co.	1,250	3,100	74,000	600	76	472	1
Block Plant Electric Light Co.	273	417	5,250	....	3	16	1
Sudbury Building	202	230	719	3	83	171	1
Steam and Power Co	267	295	4,000	400	41	214	2
Hecht Building Plant	300	200	2,400	240	32	234	1
*Isolated Plants	62,049	39,899	205,439	3,681	1,074	9,235	276
Totals	115,854	142,981	971,711	15,271	13,724	192,493	303

*The capacity of generators for isolated plants in k. w., 21,287.

January 31, 1907.

Boston Elevated Railway Co.	30,914	59,170	60,728	569	4,911	191,307	10
Edison Electric Illuminating Co.	23,659	47,575	686,858	9,581	8,439	30,839	13
Charlestown Gas and Electric Light Co.	....	....	....	....	80	392	....
Boston Consolidated Gas Co.	1,250	3,100	80,000	600	101	469	1
Block Plant Electric Light Co.	273	417	5,250	....	3	16	1
Sudbury Building	202	230	727	2	25	114	1
Steam and Power Co.	267	295	4,000	400	60	294	2
Hecht Building Plant	300	200	2,400	240	32	234	1
*Isolated Plants	64,921	42,792	221,415	3,771	1,297	10,651	298
Totals	121,786	153,779	1,060,878	15,163	14,948	234,316	327

*The capacity of generators for isolated plants in k. w., 21,087.

January 31, 1908.

Boston Elevated Railway Co.	39,138	64,950	66,149	625	5,401	226,607	10
Edison Electric Illuminating Co.	25,456	71,200	749,087	9,169	9,200	35,963	13
Charlestown Gas and Electric Light Co.	475	140	....	....	80	503	....
Boston Consolidated Gas Co.	1,500	3,100	96,170	604	121	486	1
Block Plant Electric Light Co.	273	417	5,250	....	3	16	1
Sudbury Building	202	230	656	....	30	140	1
Steam and Power Co.	267	295	4,000	400	60	294	2
Hecht Building Plant	300	200	2,400	240	32	234	1
*Isolated Plants	64,859	44,471	223,000	3,869	1,472	11,428	301
Totals	132,470	185,008	1,146,712	14,907	16,399	275,661	330

*The capacity of generators for isolated plants in k. w., 22,251.

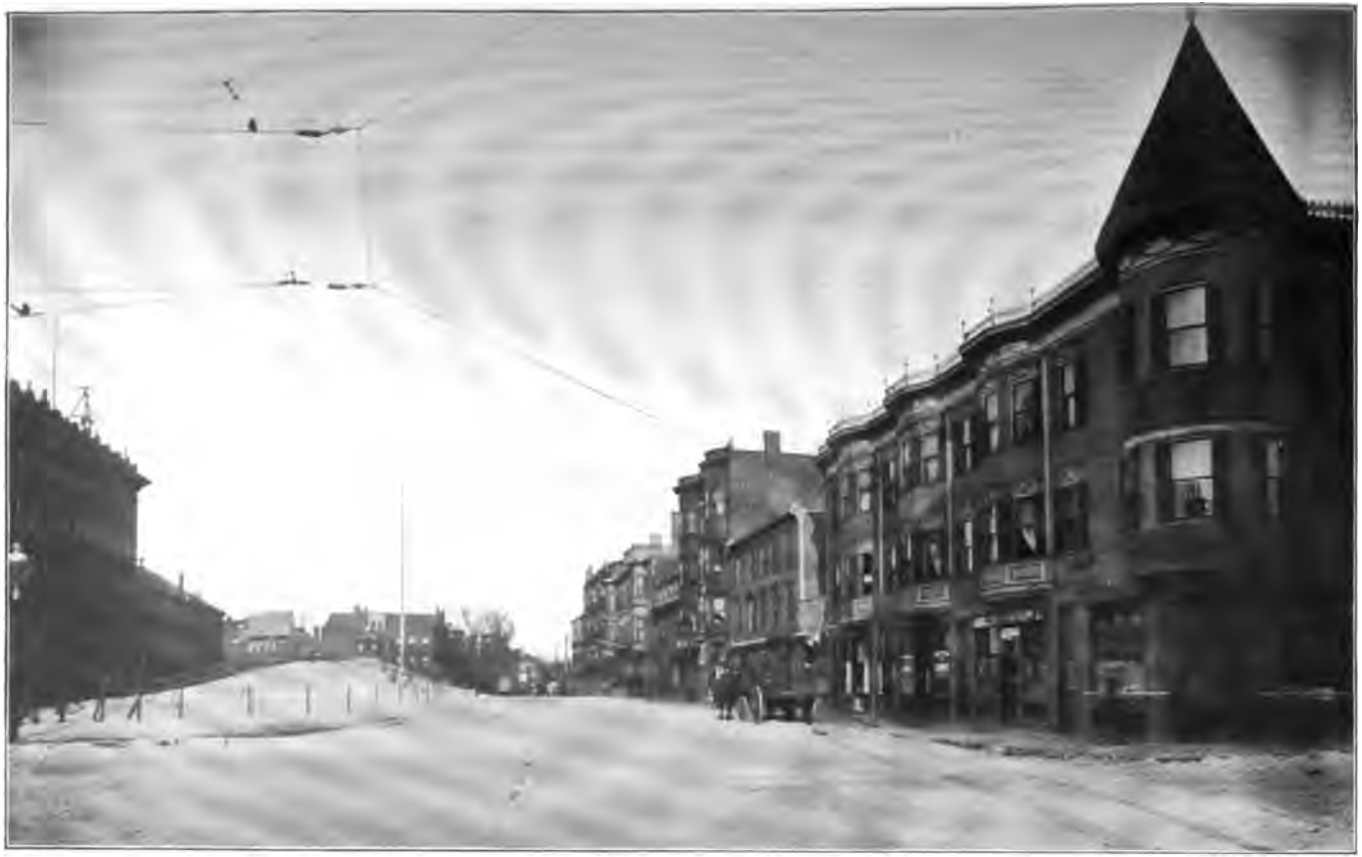


Plate No. 8. — Maverick square, East Boston, from Sumner street, without wires.

INTERIOR DIVISION.

During the past year the inspection of theatres and halls required by chapter 450 of the Acts of 1904 has been made by this department in so far as the electrical equipment of same is concerned.

There have also been made monthly inspections and tests of the electrical equipments of moving picture machines and other places of amusement, which, while not specifically called for by the Acts mentioned above, were in our judgment fully as necessary in the interests of protection to life and property as the inspections of theatres.

Weekly inspections have been made of the temporary wiring of the electrical equipments of the various traveling theatrical combinations when they have been fulfilling engagements in this city. The value of these inspections is unquestionable, as oftentimes electrical equipments as they arrive in this city are in a condition positively dangerous. When found in such condition they are condemned, and their use not permitted until such changes are made in same as will in our opinion permit their use with safety.

The permanent electrical installations of theatres received more attention and are kept in much better condition than they were previous to the system of monthly inspections now in force.

The electricians of the theatres know that an inspection is to be made some time during the month, but, having no knowledge as to what particular day the inspection may be made, are constantly on the watch, and as soon as such common defects as a defective socket, switch or other device is noticed the defective device is replaced with a sound one without waiting for a report from the inspection department relative to same.

The department has had the hearty co-operation of the various theatre managements, not only in so far as the temporary installations were concerned, but also as regards the permanent electrical equipment of their theatres, as even when changes called for in the latter involved the expenditure of several thousand dollars (as it did in the case of two theatres) the department's requests for changes were promptly complied with.

During the year there has been issued, as a supplement to the last edition of the rules and requirements of the Commissioner of Wires, rules relating to the installation of "theatre wiring." These rules on theatre wiring were the results of careful consideration on the part of a committee, of which a representative of this department was a member, which reported its conclusions to a conference held in New York in March, 1907, for the consideration of the "National Electrical Code," Committee on Theatre Wiring being appointed at a previous meeting held, as was this one, under the auspices of the Electrical Committee of the Underwriters National Electric Association. Report of the committee, with slight amendments, was accepted, and theatre wiring rules as issued by this department are, therefore, national in character.

It is gratifying to be able to report that the grounding of alternating current secondary systems in this city has given good results. In past years, before the secondary systems were grounded, we had many cases where, as a result of accidental crosses between high potential and secondary overhead wiring, or as a result of breakdown in insulation of transformers, high potential current entered buildings over secondary low potential wiring, in some cases with very serious results. We have had no case during the past year where any damage has been caused inside of buildings by high potential current entering same, although we have had a number of cases where crosses have occurred between high potential circuits and secondary circuits, and where breakdown in the insulation of transformers have occurred.

As much time as practicable was devoted to the inspection of old wiring. As noted in previous reports it is the old work that is the most dangerous, as some of it was installed at a time when not only the methods were crude as compared with the standard of to-day, but it has suffered from that deterioration of insulation, which all insulation, known either in the past or at the present time, necessarily suffers from age and from exposure to atmospheric changes.

As in the past the laboratory of the department has been of great assistance in the formation of intelligent and just decisions regarding material and appliances submitted.

The customary careful investigations have been made of all cases coming to the attention of this department where fires or accidents have occurred, due or supposed to have been due to electrical causes. Only a comparatively small proportion of the fires reported as probably due to electrical causes are found upon investigation to be due to electricity.

There have been many cases where fires have been reported as caused by "electric wires" where there has been absolutely no justification for such report, there being no wires or electrical apparatus anywhere in the vicinity of where fire occurred.

Fires for which three or more alarms have been given have been responded to.

The greater number of the fires during the year found upon investigation to be due to electrical causes were trivial in character, with no insurance loss, and the total insurance loss for all fires during the year found to be due to electrical causes was small.

The number of fires originating in the interior of buildings and found upon investigation to have been due to electrical causes was eighteen. Of this number there were but seven on which an insurance loss was reported, and the total insurance loss on these seven was but $11,549. Of this loss $11,383 was caused by fires in electric light and power stations, $10,374 of same being for fire which occurred at the First Station of the Edison Electric Illuminating Company, Head place, February 18; $325 for fire which occurred at the Lincoln Wharf Power Station of the Boston Elevated Railway Company, March 1; $184 for fire at the Fifth Station of the Edison Electric Illuminating Company, West Canton street, March 5; and $500 for fire at the Central Power Station of the Boston Elevated Railway Company, September 17.

With the exception of the losses caused by fires in the stations above given, the insurance losses reported for fires which were found to be due to electrical causes were but $166, same being divided on three fires, losses being respectively $152, $12 and $2.

During the year there were 20 accidents to persons, 7 of which resulted fatally. Of the 20 accidents, 14 were to experienced men, who were working on wires or electrical apparatus at the time the accidents occurred. Of the fatal accidents, 1 was to an employee of the Charlestown Gas and Electric Company, and occurred on their premises, victim coming in contact with a power wire; 3 were to linemen who were at work on poles at the time; 2 were to men at work about a generator in the power station, and 1 was to a man at work on a pile-driver scow, guy rod which he had hold of at the time coming in electrical connection with a 2300-volt A. C. wire as scow was swung around to take a new position.

Of the 5 accidents without fatal termination to persons inexperienced in electrical matters, 1 was the result of a citizen touching a telephone wire which had broken and fallen to ground heavily charged, it being crossed with an electric lighting wire; 1 was due to a boy at a fire touching a 2300-volt A. C. wire which had been cut by the firemen as it interfered with their ladders; 1 was to a boy who had climbed up to and taken hold of a 2300-volt A. C. wire; 1 was to a citizen who came in contact with an electrically charged water conductor; and 1 was to an iron worker at work putting up a grill door in a generating station. With the exception of the accidents in which the two boys were concerned, results of the accidents were very slight.

The following is a complete summary of the work of the Interior Division for the year ending January 31, 1908:

Notices of new work received	9,465
Buildings in which wiring was completely examined	1,158
Incandescent lights examined	966,615
Arc lights examined	5,909
Motors examined	5,477
Total horse-power of motors examined	23,347½
Services examined	773
Inspections made	28,265
Defects reported	1,945
Defects corrected	1,190

Other defects in process of correction.

During the year there have been seventy-two fires or accidents to property, the origin of which was traced to electricity:

Fires in interior of buildings	18
Fires on outside walls of buildings	0
Fires at bridges	7
Fires on poles	5
Explosions in manholes	4
Miscellaneous (exterior)	33
Miscellaneous (interior)	5
	72

The following is a record of isolated plants in operation in this city:

Number of	plants,	301.		
"	boilers,	628,	total horse-power,	63,645
"	engines,	551,	" "	43,239
"	generators,	531,	" k. w. capacity,	21,493
"	motors,	1,375,	" horse-power,	10,979
"	incandescents,	220,178.		
"	arcs,	3,805.		

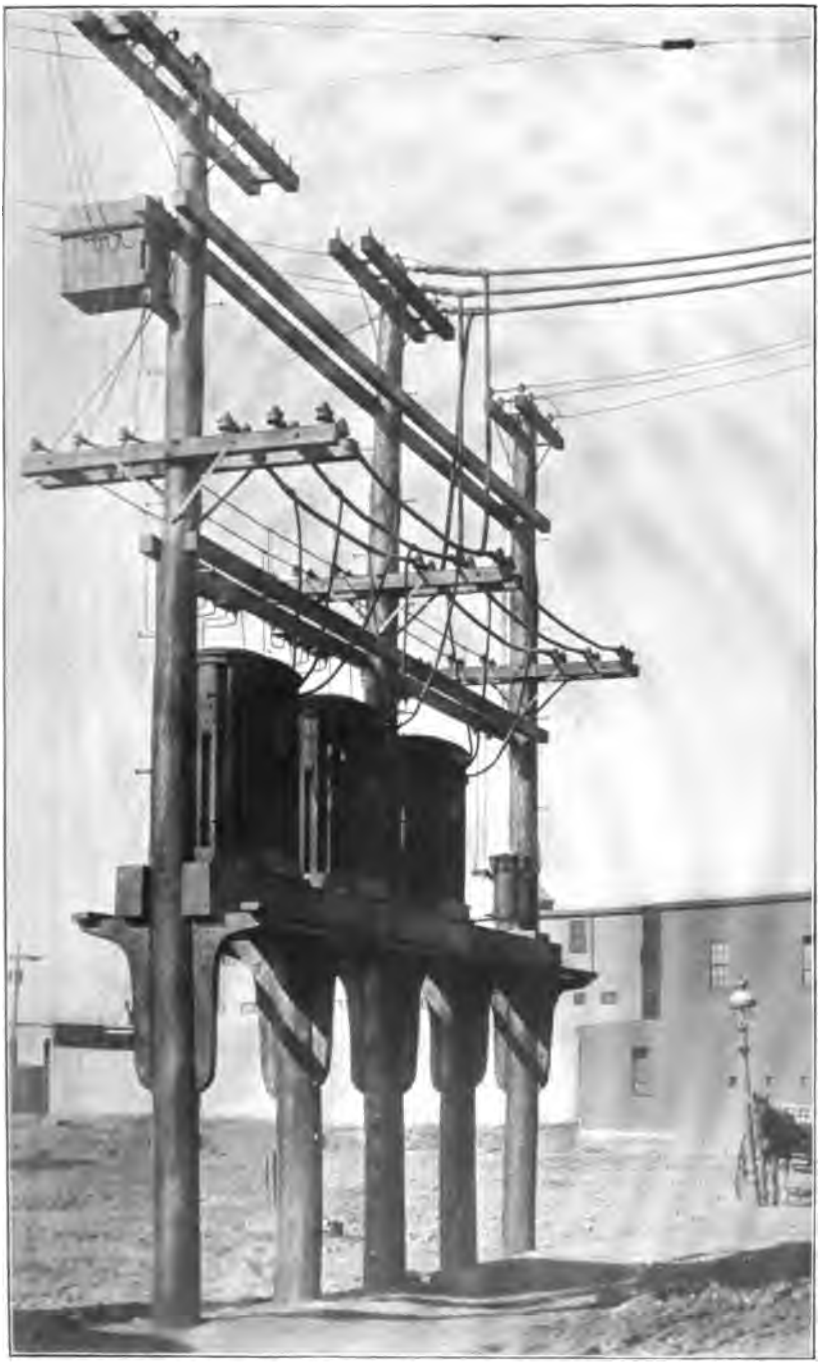


Plate No. 9. — Bank of transformers on private property off Dorr street, South Boston.

The record of new plants installed and inspected is as follows:

Number of plants,	15.		
" boilers,	19,	total horse-power,	1,214
" engines,	21,	" "	1,232
" generators,	26,	" k. w. capacity,	757¾
" motors,	97,	" horse-power,	449
" incandescents,	2,822.		
" arcs,	64.		

During the year ending January 31, 1908, there were 64 old plants inspected, the equipment of which was as follows:

Number of boilers,	119,	total horse-power,	11,633
" engines,	88,	" "	6,033
" generators,	104,	" k. w. capacity,	34,450
" motors,	506,	" horse-power,	2,243¼
" incandescents,	30,181.		
" arcs,	326.		

The record of plants, the operation of which was discontinued during the year, is as follows:

Number of plants,	12.		
" boilers,	21,	total horse-power,	1,860
" engines,	13,	" "	785
" generators,	16,	" k. w. capacity,	352
" motors,	19,	" horse-power,	121
" incandescents,	4,059.		
" arcs,	30.		

FIRES AND MISCELLANEOUS TROUBLES DUE TO ELECTRICITY.

February 2, in the neighborhood of 5 P.M., opposite 15 Portland street, several horses received slight shocks of electricity while passing through street, pavement being electrically charged as a result of breakdown in underground service cable at that point.

February 6, about 9 A.M., North draw, Chelsea bridge; Engine 36 and Ladder 22 called on still alarm to slight fire on the outside of drawtender's house. Fire was due to the grounding of current of a high potential arc circuit, which wire passed through wooden wall of drawtender's house for the purpose of feeding series incandescent lights in same. Damage slight.

February 18, 10.20 A.M., L-street bridge, South Boston; Fire Department called on still alarm on account of fire which started in manhole and extended to bridge, same being due to breakdown of cables carrying current of high potential. Damage serious.

February 18, 12.13 P.M., Box 53, No. 3 Head place, First Station Edison Electric Illuminating Company; serious fire, result of which caused temporary shutdown of station, was caused by a short circuit made by a screwdriver in the hands of workman between two cables of a high potential A. C. circuit. Insurance loss, $10,374.

March 1, 7.04 P.M., Box 14. Lincoln Wharf Power Station of the Boston Elevated Railway Company; burn-out occurred in motor located at top of coal-pocket and used to operate coal-conveyor. Damage was confined to motor, wires and the burning and charring of wood about motor. Insurance loss, $325.

March 5, 9.40 A.M., Canton street, Fifth Station of the Edison Electric Illuminating Company; short circuit occurred at an oil switch and fire was communicated to sheathed ceiling. Same was extinguished by Chemical 4 and Hook and Ladder 13 which were called on still alarm. Insurance loss, $184.

March 6, 2.45 P.M., No. 50 Washington street, corner Hanover; Fire Department called by an automatic alarm. Armature of fan motor in show window burned out, fire being communicated to articles in window. Insurance loss, $152.

March 6, 11 A.M., Box 67, Nos. 747–751 Washington street; burn-out in electric lighting mains just in front of building referred to caused an explosion of gas in basement, resulting in the demolishing of glass in store windows at No. 749 Washington street and greater portion of glass in windows at No. 747 Washington street. Six persons (passers-by) received injuries, the majority of which were slight in character.

March 9, shortly before 9 A.M., manhole, Columbus avenue, corner Dartmouth street; large quantity of smoke issued through ventilated cover of manhole, same being due to a burn-out in underground feeders just outside of manhole, smoke passing back through conduit into manhole. No damage other than to burned out feeders.

March 16, about 6 P.M., corner Tremont and West streets; members of Fire Department called on still alarm on account of short circuit of electric light wires, the insulation of which was injured by weight acting as counterbalance to sliding door of show case in window. No damage except to the burning of insulation of wire for about two or three inches.

March 16, 12.13 A.M., No. 394 Hanover street; members of Fire Department called on still alarm. Occupant cut live electric light wires even with floor and left ends of same untaped. Later floor was washed and arcing and flashing occurred at bare ends of wire. Circuit made dead by firemen. No damage.

March 20, 4.20 A.M., Atkinson street, Roxbury; Veterinary Hospital of the Boston Fire Department. Burn-out in cable as a result of cross between wires of the Edison Electric Illuminating Company and the Boston Fire Department.

April 2, 2.25 A.M., corner of Amory and School streets; tree fire for which Chemical 5 was called on still alarm. Same caused by high potential arc wire of the Edison Electric Illuminating Company coming in contact with branches of tree, arcing and flashing occurring at points of contact.

April 17, about 8 A.M., Longwood avenue near Binney street; tree fire caused by wire of primary A. C. circuit of the Edison Electric Illuminating Company coming in contact with limb of tree. Tree limb (8 or 9 inches in diameter) burned to a depth of over 6 inches. Members of Fire Department called on still alarm.

April 23, about 8.35 A.M., Gainsborough street, just west of St. Stephen street, and corner of Gainsborough street and St. Stephen street; explosions occurred in two manholes of the Edison Electric Illuminating Company, same resulting from a burn-out of underground electric feeders which ran between two manholes.

April 26, 8.09 P.M., corner of Centre and Holbrook streets, Jamaica Plain; Fire Department reported wire sparking and flashing badly. Same was found to be due to the grounding of current at point where series arc lighting wire was in contact with branches of tree. No damage.

April 24, about 2.20 A.M., New England Telephone and Telegraph Company pole, White street, near Marion street, East Boston; Engine 5 called on still alarm; fire started among wires of the Edison Electric Illuminating Company running from standpipe to arm of said company. Probably due to breakdown in insulation at joint made between one of the conductors from standpipe and conductor running up pole. In addition to injury to wires, pole was badly charred for 12 to 15 feet of its length. Raining hard at time of trouble.

April 28, shortly before 5 A.M., corner State and Devonshire streets; workmen excavating in street broke into two ducts of the tile conduit of the Boston Elevated Railway

Company, causing short circuits in cables which was communicated to other cables (13 in number) resulting in heavy damage to conduit system in vicinity.

April 29, 12.50 P.M., Box 702, Nos. 121 and 123 Staniford street; breakdown occurred in a 110-volt D. C. lighting circuit at point where a gas pipe had been installed in contact with wires. A hole was melted in gas pipe, and gas issuing from same was ignited. Damage confined to gas pipe, slight smoking of ceiling and injury to about a foot of wire.

May 3, 12.55 P.M., 49 Purchase street; burn-out of armature of motor, causing considerable smoke. No damage other than to motor. Engine 25 and Ladder 8 called on still alarm.

May 12, 10.11 P.M., Box 52, No. 129 Summer street; small motor operating an advertising sign consisting of a figure of a child was left with current on. Bearings of motor ran dry, armature burned out, and clothing on figure was ignited. Damage confined to the burning of the advertising figure, scorching of some show window dressing material and broken glass. Insurance loss, $12.

May 17, between 4 and 5 P.M., Dorchester avenue, corner Beal street; tree fire caused by high potential wire coming in contact with branch of tree.

May 19, P.M., corner Dorchester avenue and Dorchester street; series arc wire became detached from insulator and swinging in the air came in contact with the other leg of circuit, cutting out a portion of the circuit and causing bad arcing at point of contact.

June 2, 7.43 A.M., Box 815; corner Braintree and Franklin streets, Brighton; fire was in switchbox of the Boston Elevated Railway Company, caused by breakdown of insulation of one of the overhead cables entering box.

June 24, 1.48 P.M., Box 84, Harvard bridge; burn-out occurred in service wires of the Edison Electric Illuminating Company run in iron pipe from under side of bridge to house on the bridge, current being used for lighting bridge. Damage confined to service wires and pipe and slight burning of wood beams and under side of planking.

June 24, 10.58 P.M., 120 Tremont street; Fire Department called by an automatic alarm for a slight fire on the sixth floor of building. Insulation on wires run in moulding on brick wall was deteriorated as a result of moisture; leakage of current took place between wires of opposite polarity, arcing resulted and moulding and neighboring woodwork were ignited. Insurance loss, $2.

June 25, Dorchester avenue near Dracut street, Dorchester; tree fire caused by 2300-volt A. C. wires of the Edison Electric Illuminating Company coming in contact with limb of tree.

June 30, about 7.50 P.M., 150 Huntington avenue; slight fire, to which members of the Fire Department were called on still alarm. Gas from leak at insulating joint was ignited by flash of short circuit which occurred in fixture wire beneath canopy.

July 9, about 1 P.M., corner Columbia road and Massachusetts avenue; cross between high and low potential wires on pole caused arcing and burning at point of contact. No damage except to wires. Engine 21 called on still alarm.

July 9, 9.09 P.M., Chelsea bridge; Engine 36 and Ladder 22 called on still alarm for slight fire on the easterly side of bridge, just south of the south draw. Fire was due to the grounding of current of series arc street lighting circuit; beyond slight charring of under side of bridge and burning of insulation of wire for a short length, no damage by fire.

July 11, 9 P.M., opposite Engine 18's House, Dorchester; tree fire caused by grounding of current from series arc light circuit, which circuit was in contact with branch of tree at above mentioned location. Raining at time.

July 19, Central Power Station, Boston Elevated Railway Company, about 6.20 P.M.; fire was discovered in pit of No. 5 generator. Fire did not extend beyond pit and was extinguished by employees before any serious damage to generator resulted. It was probably due to sparks from brushes.

July 26, 10.06 A.M., Box 645, Meridian-street bridge, East Boston; fire beneath side of bridge on easterly side of bridge and just south of draw caused by breakdown in insulation of 4500-volt feeders of the Edison Electric Illuminating Company, which run between their East Boston station and the Chelsea station. Damage was confined to feeders and other conductors in the vicinity and the burning and charring of bridge for eight or ten feet beneath same.

July 26, about midnight, Meridian-street bridge; Hook and Ladder 2 called on still alarm. Breakdown occurred in insulation of cable installed for temporary use while permanent repairs of damage resulting from morning burn-out were being made. Hole burned in insulation and lead sheath of cable, otherwise no damage.

August 10, 6.45 A.M., Box 10, Nos. 5 and 7 Fleet street; burn-out in underground service cable of the Edison Electric Illuminating Company beneath sidewalk, smoke entering basement of building. No fire in building.

September 3, about 2.20 P.M.; explosion beneath sidewalk in front of building No. 50–58 Eastern avenue of sufficient violence to blow four coal-hole covers, and in one case cast-iron rim upon which cover rested, from their position, and a burn-out occurred in cable service of the Edison Electric Illuminating Company entering that portion of building No. 52.

September 11, 6.32 P.M., Box 237; same being for a tree fire in Eliot square, opposite Norfolk House, caused by grounding of current from series arc circuit of the Edison Electric Illuminating Company, which circuit was in contact with limb of tree. No damage except to tree.

September 17, 7.10 P.M., Box 68, Central Power Station of the Boston Elevated Railway Company; fire was caused by short circuit, current from commutator of generator grounding on commutator clamp. William C. Jennings, who was attempting to wipe commutator at the time, received a severe scorching to his face and burns to his hand. Insurance loss, $500.

September 19, shortly after 2 P.M., No. 228 Franklin street; members of Engine 25 called on still alarm, 220-volt wires run in moulding on brick wall became so badly affected from dampness that short circuit resulted. Damage confined to wires and moulding for about a foot in length.

September 21, 2.02 P.M., Box 93, corner Brookline and Tremont streets; smoke was seen issuing from sidewalk, alarm being rung on account of same. Cause of trouble was a burn-out in service tube of the Edison Electric Illuminating Company, which entered building at the southeast corner of Brookline and Tremont streets. No damage except to service.

September 23, 2.30 A.M., New England Telephone and Telegraph Company pole, First street, just west of E street, South Boston; fire caused by series arc light wire coming in contact with cross-arm. due to pin and insulator being broken. No damage except to wire, cross-arm and pole. Raining hard at the time.

September 23, 9.19 P.M., Box 153, Castle Island bridge; fire on under side of bridge, caused by grounding of current from a series arc light wire which had become detached from insulator. One 6 by 10 timber of bridge badly burned, otherwise damage slight. Severe rain storm in progress at the time of fire.

September 24, 2.30 P.M., automatic box 1225, Nos. 197–203 Portland street; men working on new building, Nos. 173 and 175 Portland street, using a whip-hoist to hoist material, permitted metal cable to come in contact with trolley wire of the Boston Elevated Railway Company. Metal cable was also in contact with ironwork of building. Current passed from trolley wire through cable, ironwork of building, to gas pipe in basement of building No. 203 Portland street, burning a hole in gas pipe and igniting gas. This was the extent of damage, with the exception that woodwork in the immediate vicinity was slightly charred.

September 28, 8.44 P.M., corner Roxbury street and Guild row; slight fire on pole, caused by series arc wire and 2,200-volt A. C. circuit coming in contact. No damage except to wires. Severe rainstorm in progress.

September 28, 9.30 P.M., corner Cottage and Leyland streets; cross between series arc circuit of Edison Electric Illuminating Company and telephone wire, with resulting arcing and flashing at points of contact. Severe rainstorm in progress at the time.

September 29, 12.15 A.M., 2,200-volt A. C. wire in contact with secondary wires on pole, corner O and Second streets, South Boston, with consequent arcing and flashing at points of contact. Severe rainstorm in progress at the time.

September 29, 6.50 P.M., Boylston-street bridge reported by the police as electrically charged. Trouble found to be due to series arc wire coming in contact with bridge. As far as could be ascertained, no damage to either persons or bridge. Severe rainstorm in progress at time.

September 29, 6.55 P.M., opposite No. 77 Mt. Pleasant avenue; tree fire caused by wire of series arc circuit coming in contact with tree. Members of Fire Department called on still alarm. Severe rainstorm in progress at time.

September 29, 6.55 P.M.; tree fire caused by series arc wire coming in contact with tree. Members of Fire Department called on still alarm. Severe rainstorm in progress at the time.

September 29, 7 P.M., Quincy and Coleman streets; Hook and Ladder 7 called on still alarm on account of trouble due to a limb of tree breaking and coming in contact with 2,200-volt A. C. wires and a series arc circuit. Severe rainstorm in progress at the time.

October 2, corner Wales and Harvard streets, Dorchester; tree fire caused by series arc circuit coming in contact with branch of tree. No damage except slight burning of tree.

October 8, 6.37 A.M., Box 256, Nos. 15 and 17 Minden street; cross occurred between 2,200-volt A. C. wire of the Edison Electric Illuminating Company and an iron guy wire from a chimney in an adjoining yard to building Nos. 15 and 17

Minden street. Current passed from 2,200-volt wire to guy wire, thence to metal flashing on roof of 15 and 17 Minden street, thence by means of water conductor to iron soil pipe and ground. Arcing occurred at point where guy wire was in contact with metal flashing and where water conductor entered soil pipe. No fire.

November 21, Bowdoin street, just north of Hamilton street, Dorchester; staging built by carpenters pushed two wires of series arc circuit together. When current was turned on this circuit (same being a street lighting circuit) arcing occurred at points where wires were in contact and one wire was burned off and fell to ground. Members of the Fire Department were called on still alarm.

November 25, 7.15 P.M., Box 312; on pole at the southeast corner of Albany and Southampton streets, a burnout occurred in an oil switch located at point where 2,200-volt A. C. underground wires connected to overhead wires on pole. Damage confined to switch and wires. Raining hard at time of trouble.

December 10, Stoughton street, corner Salcombe street, Dorchester; tree fire caused by wire of primary alternating circuit, 2,200 volts, coming in contact with tree. Wire burned off and fell to ground. Severe rainstorm in progress at the time.

December 10, Commonwealth avenue and Chiswick street; wire of 6,900-volt transmission circuit swayed and came in contact with cap of Boston Elevated Railway pole. Wire burned off and fell to ground. Severe rainstorm in progress at the time.

December 10, Blue Hill avenue, near corner of Schuyler street; wire of primary alternating circuit, 2,200 volts, came in contact with tree during severe rainstorm. Wire burned off and fell to ground.

December 10, Southampton street, near Massachusetts avenue; wires of street arc lighting circuit became crossed with another wire during severe rainstorm, burned off and fell to ground.

December 10, corner Boston and Powers streets, Dorchester; during severe rainstorm pole supporting street series arc lamp was electrically charged.

December 13, about 4.45 P.M., No. 557 Washington street; film of moving picture machine looped up in front of lens and ignited. About a thousand feet of film destroyed.

December 14, 10.08 P.M., Box 311, Kemble street, near corner of Girard street; wires of 2,200-volt primary alternating circuit became crossed during severe storm, burned out and fell to street. No damage except to wires.

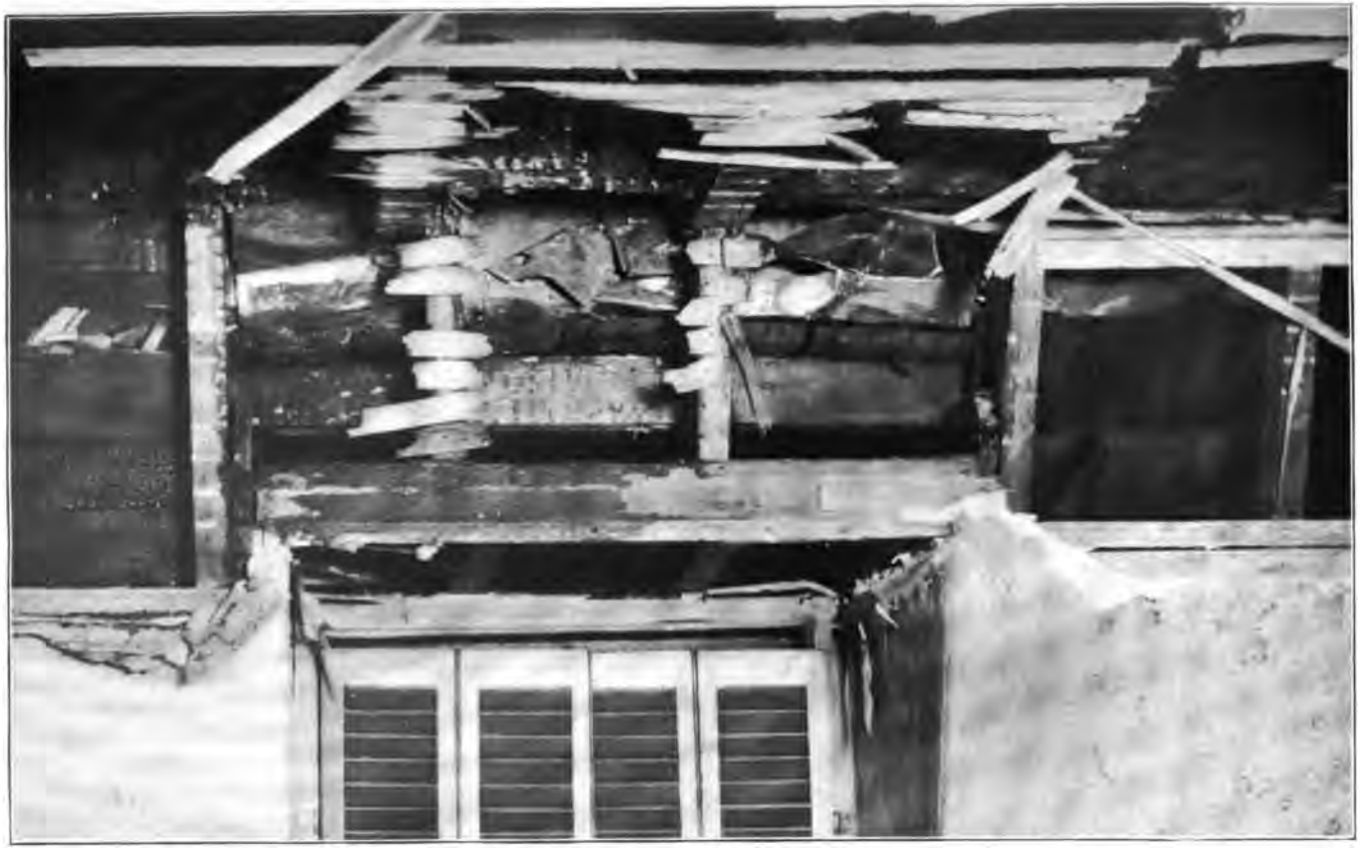


Plate No. 10. — Effect of fire caused by wire in contact with metal roof. (Interior view.)

December 16, corner Washington and Park streets and Washington and School streets, Dorchester; explosions in manholes at both locations and burnout in feeders of the Boston Elevated Railway Company running from manhole, corner Park and Washington streets, to switch boxes on pole near corner.

December 16, 5.12 P.M., Box 43, No. 3 West street; burnout occurred in small motor in basement used to operate a revolving window fixture in show window. Fire was communicated to neighboring woodwork, but was extinguished with slight loss.

December 22, 3.11 P.M., Box 86, Washington street, opposite Springfield street; burnout occurred in feeders of the Boston Elevated Railway Company where they run down pillar of elevated structure, thence through conduit to manhole on Washington street opposite Springfield street. With the exception of temporary tieup of certain sections of the surface system, damage was confined to cables involved in burnouts.

December 24, 3.30 P.M., Pier 42, Hoosac Tunnel Docks; overheated rheostat used in connection with elevator motor, same being extinguished by an employee at docks with a pailful of water.

December 27, Kingston street, Emergency Hospital; Engine 7 called on still alarm at 6.44 A.M. on account of resistance coils of an arc lamp becoming overheated and smoking as a result of improper operation of feeding mechanism of lamp. No damage except to lamp.

December 26, Pemberton square, County Court-house; flexible cord improperly used as circuit wire burned off. Ends of same left alive and sparking. No damage except to wires.

January 2, 1908, 7.17 A.M., Box 89, No. 203 Clarendon street; burnout occurred in underground electric service cable where it passed through foundation wall of building, smoke entering basement.

January 4, No. 22 School street; slight fire in elevator machinery house on roof of building, probably caused by sparks from automatic starter.

January 6, 8.10 A.M., Box 53, No. 628–632 Washington street; arcing between the two ends of a broken branch circuit wire ignited insulation and fire was communicated to nearby woodwork. Damage slight.

January 24, Southampton street and Massachusetts avenue; during severe rainstorm wires of series arc circuit were swung against a grounded guy wire, cutting out a portion of the circuit and causing arcing and flashing at points where guy wire and arc wires came in contact.

ACCIDENTS TO PERSONS DUE TO ELECTRICITY.

March 18, about 9.20 A.M., Joseph Maguire, a general workman or laborer in the employ of the Charlestown Gas and Electric Company, while at work in the retort house at said company's premises, Charlestown, came in contact with a wire carrying current for electric motor, receiving a shock resulting in his death.

April 19, about 2.55 P.M., John P. Higgins of No. 1776 Centre street, West Roxbury, received a shock and a slight burn, the latter on finger of right hand, caused by his touching a telephone wire which had broken and fallen to the street and which was crossed with a primary alternating circuit of the Edison Electric Illuminating Company, telephone wire becoming heavily charged thereby. Accident occurred on Willow street, between Centre and Railroad streets, West Roxbury.

April 29, at about 11.55 A.M., Parker street near Longwood avenue, Philip Henry, an employee of the New England Telephone and Telegraph Company, while at work on a pole came in contact with 2,300-volt primary A. C. wires of the Edison Electric Illuminating Company. Death resulted.

June 7, about 3.30 P.M., Patrick Foley, a foreman in the employ of the New England Telephone and Telegraph Company, while at work on a pole, corner Monument and Bunker Hill streets, received electric shocks resulting in his death.

July 13, in the neighborhood of 2 P.M., corner of A and Congress streets, South Boston. While a fire was in progress at building No. 347–351 Congress street, for which four alarms from Box 148 were given, it became necessary for the firemen to cut a 2,200-volt wire which was interfering with the use of their ladders. This wire when cut swung down and hung from pole on opposite corner of street. A boy, William McGlinchey by name, residing on A street, South Boston, took hold of or came in contact with end of wire, which hung about four feet above sidewalk, receiving severe shock, also receiving a severe burn to the inside of right hand. He was removed in an unconscious condition to the Emergency Hospital for treatment. Injuries said to be not serious.

July 20, Beacon street, corner Hereford street, H. C. Cole, an employee of the Edison Electric Illuminating Company, was severely burned on the right arm as a result of a short circuit in T-box upon which he was working at the time.

July 20, L-street station of the Edison Electric Illuminating Company, about 7.45 P.M., Ralph G. Hibbard, an assist-

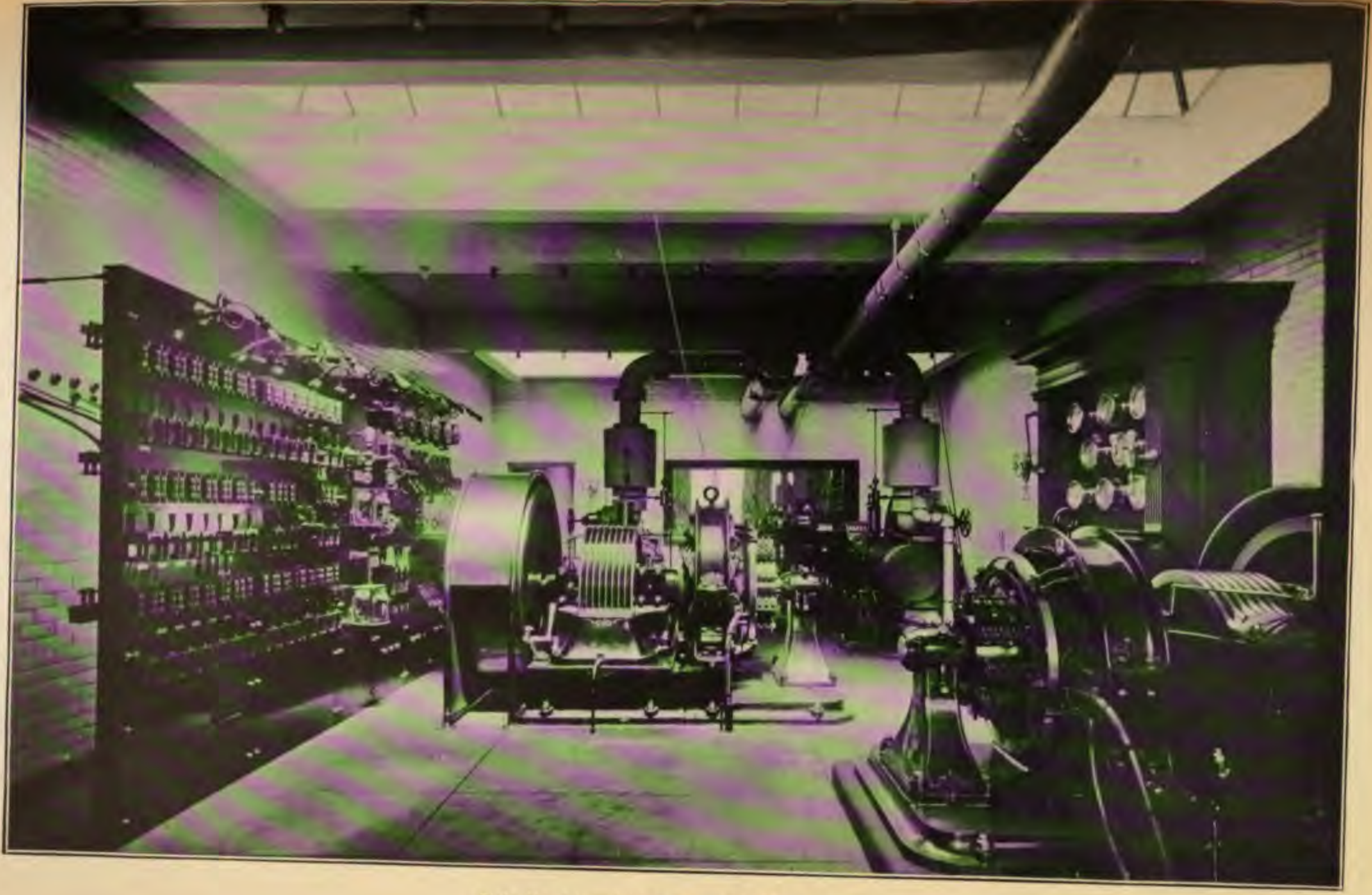


Plate No. 11.—John C. Haynes Isolated Plant.

ant operator, while attempting to stop the brushes of arc machine from rocking, reached with his left hand to shut off the automatic control while with his right hand he reached for a brush holder. In doing this, his right fore arm came in contact with brushes of machine, he receiving a shock thereby which knocked him down, also receiving severe burns on arm which came in contact with brushes of machine.

August 10, in the neighborhood of 11 A.M., James Coughlin, fifteen years of age, and residing at No. 3 Havre street, East Boston, climbed upon a beam supporting framework of galleries connected with grain elevator, Mystic wharf, Charlestown, and near House No. 47, received severe shocks of electricity, a severe burn to the inside of third finger of left hand, also severe injuries as result of fall; Coughlin climbed upon framework for the purpose of reaching a pigeon's nest, and his injuries were the result of his taking hold of a 2,200-volt A.C. wire, same forming part of a circuit belonging to the Boston & Maine Railroad; shock causing him to fall to ground, a distance of about twenty-five feet.

August 12, at about 1.10 P.M., Thomas Strickley, an employee of Mr. C. A. Miller, while standing on a pile driver scow, received a shock of electricity resulting in his death. Strickley stood with right hand tightly grasping rod or guy which ran from pile driver structure to gunwale of scow, while with his left hand he was pulling on rope which passed down into the water and across to one of the piles of wharf structure. Scow was being swung to a new position, and nut of bolt from which rod (before mentioned) ran to gunwale came in contact with a 2,200-volt wire of the Boston & Maine Railroad Company, current from same passing through nut, bolt, rod and man, with fatal results to man.

September 17, 7.10 P.M., William C. Jennings, an employee of the Boston Elevated Railway Company, at their central power station, had his face scorched and hand burned as a result of a short circuit between commutator and commutator clamp of 1,200 kilowatt generator.

September 22, between 9.15 and 9.30 A.M., at the power station of the Boston Elevated Railway Company, No. 8 George street, Charlestown, Benjamin Sully and Robert Anderson, employees of Stone & Webster Engineering Corporation, were killed. The men at the time were standing on iron flooring and leaning against wheel used to regulate the brushes of a 2,700 kilowatt generator, same being supported by metal piece attached to field frame, and were awaiting the results of a test of the fields, 550 volt current of station being used for the purpose. When current was thrown on the fields, a slight cry was given by the men, who fell to the floor. Upon examination, both men were found to be dead.

October 1, Erling Stormoen, an employee of A. & J. M. Anderson, while working on switchboard work at the first station of the Edison Electric Illuminating Company, Head place, was severely burned about the face as a result of a short circuit, caused by wire which he was trying to pass between battery buses and ceiling, making simultaneous contact between one of the bus-bars and grounded iron hanger support to same.

October 8, Michael Doyle, No. 15 Minden street, received a severe but not serious shock by coming in contact with an electrically charged water conductor which ran down on the outside of his residence.

October 12, Wm. Grevenstein, an employee of Stone & Webster Corporation, while at work in the Charlestown power station of the Boston Elevated Railway Company had occasion to remove a portion of the lead covering of a 500,000 C. M. cable which was alive at the time. Lead sheath had been cut, and an attempt was being made to raise the edge of same, using a screwdriver for the purpose. Point of screwdriver pierced insulation and blade made simultaneous contact with live conductor and lead sheath of cable. Mr. Grevenstein received burns to his face and hands.

December 10, about 10.15 A.M., Charles C. Nelson, an employee of the G. W.& F. Smith Iron Company, while at work in the 6,900 volt bus-room in the L-street station of the Edison Electric Illuminating Company putting up a grill door at the end of extension on new part of bus-bar compartment, received a severe shock which threw him down. He also received two small burns above the elbow on the right arm and two burns below the elbow on the left arm.

December 13, at about 2.10 P.M., Joseph F. Burke, while at work on pole belonging to the N. Y., N. H. & H. R.R. opposite Freight House No. 7, Congress street, South Boston, recieved shocks and burns, resulting in his death. He was employed by F. T. Ley & Co. and was working on 2,300-volt A. C. wires of the N. Y., N. H. & H. R.R. at the time.

January 3, 1908, Mr. A. G. Evans, while taking measurements on the back of the low tension board at the Chatham-street station of the Edison Electric Illuminating Company, of which company he is an employee, received severe skin burn on back of hand as a result of short circuit caused by cage of portable lamp which he was using making simultaneous contact with live parts of opposite polarity on board.

Plate No. 12.—Collection of salts on wire in damp basement.

January 13, James F. Shackleton, a lineman in the employ of the Boston Elevated Railway Company, while on tower wagon, between Beethoven street and School street, Egleston Square, received severe burn to left side of face as a result of short circuit caused by a strand of feed cable upon which he was at work coming in contact with railway elevated structure.

January 18, W. D. Goff, an employee of the Boston Elevated Railway Company, received burns to his face from flash of short circuit caused while he was attempting to operate a switch on one of the elevated cars in the Sullivan-square yard, by a controller handle which he had in his hand at the time making simultaneous contact with live part of switch and grounded metal work of car.

WORK OF INTERIOR DIVISION.

Inspection of Interior Wiring of Buildings, Showing Work Performed for Five Years.

	1903.	1904.	1905.	1906.	1907.
Notices of new work received	8,590	7,983	9,317	10,412	9,465
Number of buildings, wiring completely examined	487	524	590	1,173	1,158
Incandescent lights examined	330,050	611,778	686,231	716,137	966,615
Arc-lights examined	2,716	5,738	6,028	4,469	5,909
Motors examined	2,465	2,966	3,006	4,619	5,477
Total H. P. of motors examined	11,151	11,790	11,667	21,725	23,347
Defects reported	1,274	1,073	1,289	1,425	1,945
Defects corrected	938	673	905	966	1,190
Services examined	819	571	595	780	773
Inspections made	19,635	19,224	23,588	27,286	28,265
Isolated plants in this city	274	274	276	298	301
Isolated plants inspected	32	14	4	90	79

Number and Classification of Fires, etc., due to Electrical Causes.

	1903.	1904.	1905.	1906.	1907.
Fires on outside of buildings	2	5	4	1	....
Fires in the interior of buildings	32	23	20	14	18
Fires on roofs of buildings	....	....	....	....	....
Fire on poles	2	5	8	2	5
Bridge fires	3	3	4	4	7
Burn-outs	....	....	....	....	....
Deaths	....	3	2	2	7
Injuries	7	15	17	12	13
Manhole explosions	1	3	3	2	4
Miscellaneous	12	40	25	36	38

LIST OF WIRE DEPARTMENT EMPLOYEES, JANUARY 31, 1908.

No.	Occupation.	Salary per Annum.
1	Acting Commissioner	$3,500 00
1	Chief Inspector	2,000 00
1	Chief Clerk	1,600 00
1	Draughtsman	1,500 00
1	Engineer	1,500 00
5	Inspectors	1,500 00
1	Inspector	1,400 00
10	Inspectors	1,200 00
7	Inspectors	1,100 00
1	Clerk	1,100 00
12	Inspectors	1,000 00
1	Stenciller	1,000 00
1	Stenographer	1,000 00
1	Deputy Inspector	800 00
1	Deputy Inspector	700 00
1	Telephone Operator	600 00
46		

STATEMENT OF DEPARTMENT APPROPRIATION AND EXPENDITURES FROM FEBRUARY 1, 1907, TO JANUARY 31, 1908, INCLUSIVE.

Appropriation	$67,000 00
Expenditures:	
Office (including salary of Commissioner)	$9,558 99
Interior Division	24,130 50
Exterior Division	31,288 08
Telephones	836 43
Photography and draughting	127 53
Total amount of expenditures	$65,941 53
Balance unexpended	1,058 47
	$67,000 00

DESCRIPTION OF PLATES.

Plate No. 1. — A view of a portion of Albany street in the prescribed underground district for 1906 during the progress of a fire, showing poles laden with wires, which greatly impeded the work of the firemen.

Plate No. 2. — A duplicate view of the above (Plate No. 1), showing the condition of the street after the orders of the Commissioner of Wires had been carried out, and poles and overhead wires removed.

Plate No. 3. — A view of Meridian street, East Boston, from Maverick square, showing the condition of the street before the poles and overhead wires were ordered removed by the Commissioner of Wires.

Plate No. 4. — A duplicate of the above (Plate No. 3), showing the condition of the street after the order of the Commissioner of Wires had been carried out, and all poles and overhead wires removed.

Plate No. 5. — A view of Central square, East Boston, from Meridian street, showing the condition of the square before the poles and overhead wires were ordered removed by the Commissioner of Wires.

Plate No. 6. — A duplicate view of the above (Plate No. 5), showing the condition of the street after the orders of the

Commissioner of Wires had been carried out, and all poles and overhead wires removed.

Plate No. 7. — A view of Maverick square, East Boston, from Lewis and Sumner streets, showing the condition of the square before the poles and overhead wires were ordered removed by the Commissioner of Wires.

Plate No. 8. — A duplicate view of the above (Plate No. 7), showing the condition of the square after the orders of the Commissioner of Wires had been carried out, and all poles and overhead wires removed.

Plate No. 9. — A view of a bank of three 100 kilowatt and one 10 kilowatt transformers installed on private property off Dorr street, South Boston, for a large manufacturing firm.

Plate No. 10. — A photograph showing results of fire caused by high potential wire coming in contact with metal cornice of roof, fire extending to interior of building.

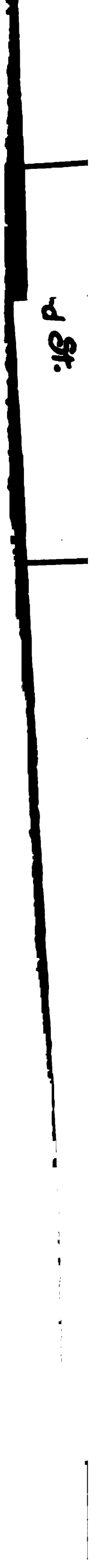
Plate No. 11. — Shows the modern John C. Haynes plant, Stanhope street.

Plate No. 12. — Shows collection of salts due to the deterioration of insulation of wire as a result of damp condition where wire was located. Same was taken from basement in the market district.

LIST OF PROPERTY OF THE WIRE DEPARTMENT.

1 High Potential Testing Apparatus.
1 Standard Resistance Coil with Wheatstone Bridge.
1 Transformer.
1 Test Board, capacity 220 volts and 300 amperes.
1 Auxiliary Test Board, capacity 220 volts and 150 amperes.
1 300-volt Weston Direct Current Voltmeter, No. 3,317.
1 15-volt Weston Direct Current Voltmeter, No. 4,717.
1 150-ampere Weston Direct Current Ammeter, No. 926.
1 1,500-volt Direct Current Voltmeter, No. 3,438.
1 1,500-mil-ampere Weston Direct Current Mil-Ammeter, No. 2,433.
1 15-ampere Weston Direct Current Ammeter, No. 8,426.
1 300-volt Weston Direct Current Voltmeter, No. 6,020.
1 500-ampere Weston Direct Current Ammeter, No. 2,428.
1 300-volt Weston Portable Direct Current Voltmeter, No. 15,459.
1 300-volt Weston Portable Direct Current Voltmeter, No. 15,455.
1 300-volt Weston Portable Direct Current Voltmeter, No. 15,456.

1 Electrostatic Voltmeter No. 70,647.
1 15-ampere A. C. Ammeter, No. 21,507.
1 200-ampere T. & H. A. C. Ammeter (Portable), No. 29,421.
1 300-volt Standard Portable Alternating and Direct Current Voltmeter, No. 1,044.
1 Reflecting Galvanometer Condenser, Telescope, Scales, etc.
1 Bichloride of Silver Battery, 150-cell.
4 Bichloride of Silver Batteries, each 60-cell.
1 Queen Testing Set, No. 389.
1 50-ampere Weston Direct Current Ammeter, No. 2,381.
1 Set Standard Resistance Coils.
1 Generator, 50,000 ohms.
1 Discharge Key.
1 Reversing Key.
1 Lamp-stand and Scale.
1 Shunt Coil.
1 Set Double Connector Posts.
2 Horses.
2 Express Wagons.
3 Business Wagons.
1 Sleigh.
4 Sets of Harnesses.
5 Robes.
7 Blankets.
2 Cameras (complete).
Miscellaneous tools used in connection with overhead construction.
Draughting instruments.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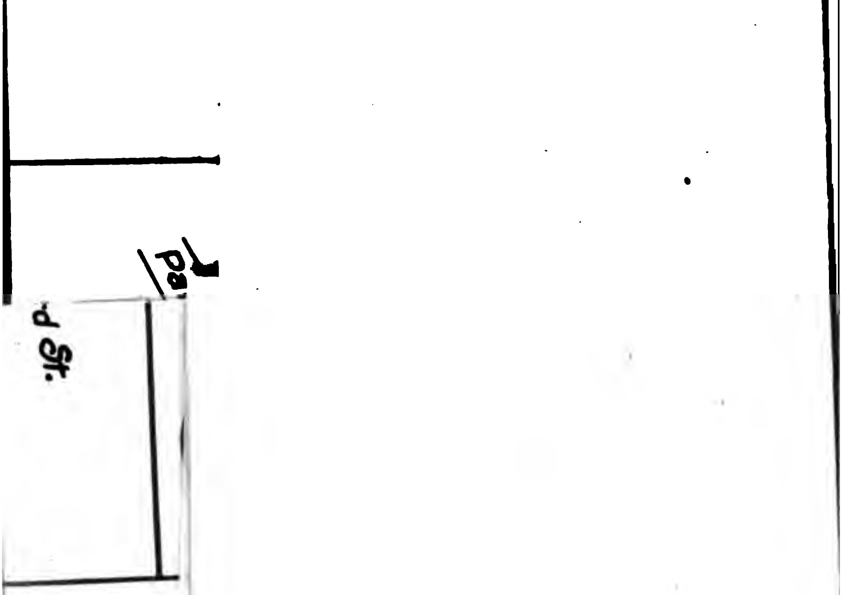
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ANNUAL REPORT

OF THE

WIRE DEPARTMENT

FOR THE

YEAR 1908

CITY OF BOSTON
PRINTING DEPARTMENT
1909

ANNUAL REPORT

OF THE

WIRE DEPARTMENT

FOR THE

YEAR 1908

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CITY OF BOSTON
PRINTING DEPARTMENT
1909

1 Dec. 1910
DEPARTMENT OF ARCHITECTURE,
HARVARD UNIVERSITY.
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ANNUAL REPORT

OF THE

WIRE DEPARTMENT

FOR THE YEAR 1908-1909.

OFFICE OF THE COMMISSIONER OF WIRES,
11 WAREHAM STREET, BOSTON, February 1, 1909.

HON. GEORGE A. HIBBARD,
Mayor of the City of Boston:

SIR,—I herewith submit report in which is shown the appropriation and expenditures of the Wire Department and the work performed from February 1, 1908, to January 31, 1909, inclusive.

As provided for in chapter 249 of the Acts of 1898, the underground district for 1909 has been prescribed, same being Blue Hill avenue from Dudley street to a point one hundred feet south of Cheney street, Roxbury street from Washington street to Columbus avenue, Guild row from Roxbury street to Washington street, and Harrison avenue from Zeigler street to Warren street, a total distance of ten thousand three hundred and fifty-seven (10,357) feet.

These streets were selected on account of the existing conditions demanding some radical action relative to the wiring equipments or else the removal of same from overhead; also to the fact that it would cause a proper and needed extension of existing underground construction.

Chapter 249, Acts of 1898, expires with the year 1909, but provisions for the placing of wires underground similar to that called for by said act is provided in chapter 347 of the Acts of 1908 for the years up to and including the year 1919.

This new act also provides for the granting of permits for the necessary terminal poles in connection with the prescribed underground streets by the Commissioner of Wires.

This legislation has resulted in allowing terminal pole locations to be granted, which has permitted the clearing of certain of the prescribed streets of poles which previously had necessarily remained on account of lack of terminal facilities of companies owning said poles.

The department, which in past years has been somewhat handicapped on account of there being no penalty for failure on the part of contractors and others to comply with the law requiring notification of wiring and apparatus for light, heat and power purposes installed within buildings, has been materially assisted by the enactment of chapter 339 of the Acts of 1908, which went into effect April 1, and which provides a penalty of not less than $10 nor more than $50 for each failure to send notification required by law.

During the year there has been no fire caused by wiring approved by the department, and it is gratifying to report that there has been but one death during the year caused by electricity.

I desire to again call attention to the fact that the very valuable records of this department are not properly protected and a fireproof vault should be provided.

Yours respectfully,

James E. Cole,
Commissioner of Wires.

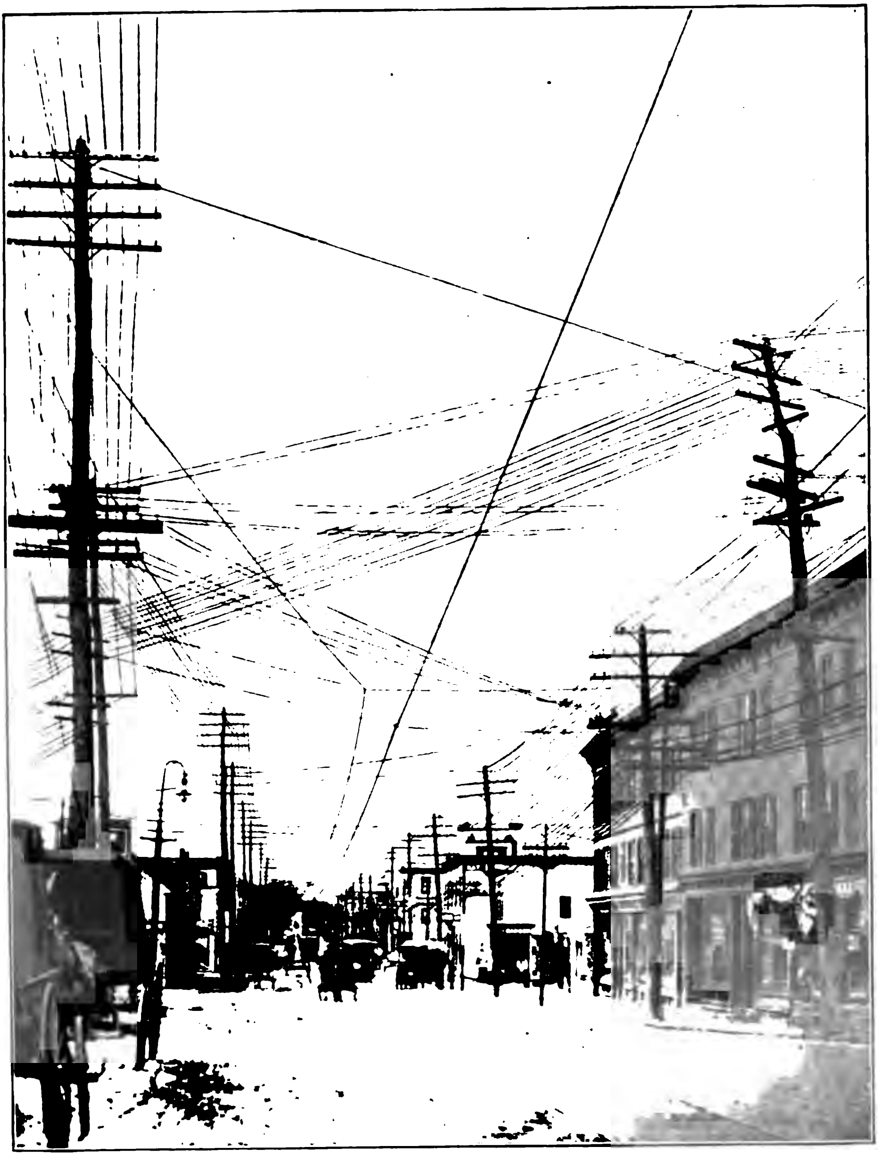


Plate No. 1. — Junction of Dorchester avenue and Freeport street, showing existing overhead conditions.

EXTERIOR DIVISION.

The prescribed underground district for 1908 comprised that portion of Harrison avenue between Northampton street and Zeigler street, a distance of two thousand six hundred (2,600) feet; and the entire length of Warren street, Roxbury, from Washington street to Grove Hall, a distance of seven thousand nine hundred (7,900) feet, making a total distance of ten thousand five hundred and forty (10,540) feet, which distance lacks by twenty (20) feet the two miles as authorized under chapter 249, Acts of 1898.

In that portion of Harrison avenue prescribed there were standing February 1, 1908, twenty-three (23) poles, owned as follows: eighteen (18) by the New England Telephone and Telegraph Company, four (4) by the American Telephone and Telegraph Company and one (1) by the Edison Electric Illuminating Company.

In Warren street, there were standing February 1, 1908, one hundred thirty-one (131) poles, owned as follows: seventy-nine (79) by the Edison Electric Illuminating Company and fifty-two (52) by the New England Telephone and Telegraph Company.

Attached to the poles or crossing overhead on Harrison avenue, between Northampton street and Zeigler street, there was about fifty-one thousand (51,000) feet of wire, owned by the Edison Electric Illuminating Company, the New England Telephone and Telegraph Company and the American Telephone and Telegraph Company.

Attached to the poles or crossing overhead on Warren street, between Washington street and Grove Hall, there were about one hundred ninety-seven thousand (197,000) feet of wire, owned by the Edison Electric Illuminating Company, the New England Telephone and Telegraph Company, the Postal Telegraph-Cable Company, the West End Street Railway Company and the Fire Alarm Branch (B. F. D.).

The above figures give a total of two hundred forty-eight thousand (248,000) feet, or over forty-six (46) miles of wire over these streets ordered cleared of wires and poles during the year 1908. This does not include the trolley or span wires of the West End Street Railway Company.

The customary attention has been given to the underground and overhead construction, both new and old; to the attachment of the wires of one company to the poles of another; to new pole locations, which are selected by the engineers of the various companies desiring locations, in company with a representative of this department, before they petition the Board of Aldermen; to the erection of derricks and stretching of derrick guys and to the moving of buildings, where electric wires are apt to be damaged or workmen are liable to be endangered by coming into electrical connection with same through wire guys or other conductors; to the stretching of all private wires over public streets or avenues outside the underground districts, permission for which should be first granted by the Board of Aldermen, but which we find now and then put up without that permission and without notice to this department; in these cases the owners were requested to remove the wires or comply with the law with reference to the same.

As a result of careful attention given to general construction, poles, etc., many defects were found, a large majority of which, as the figures in the tables will show, have been corrected during the year.

During the last few months the Edison Electric Illuminating Company in conjunction with the Lamp Division of the Street Department has been at work installing the Tungsten lamps in the outlying sections of the city. In many of these cases the new electric lamp has taken the place and location of the old naphtha street lamps.

In some cases these lamps are attached to carrying poles, and, in others, new chestnut poles, twenty to twenty-five feet in height, have been erected to support them, and these poles are not included in the figure given of poles standing.

This work has required special inspection, as every proposed location is submitted (as are all new lamp locations) to this department for approval electrically, before the work is commenced; then after lamps are installed and wires run and connected up the work is again inspected for approval or disapproval as to the general construction.

By the authority given the Commissioner of Wires in chapter 347, Acts of 1908, thirty-one (31) terminal pole locations have been granted the companies, thereby permitting them to clear the underground districts of 1906 and 1907 of all overhead wires and poles; and the district of 1908 is all ready to be cleared of all poles and wires as soon as the weather is favorable to making the necessary changes over from one system to the other and the removal of the poles standing.

The increase in the notices received of new work during the past year is largely due to the increased use of the telephone in the residential districts.

The following table will show the overhead work for the year from February 1, 1908, to January 31, 1909, inclusive:

Permits granted by the Board of Aldermen to set poles	80
Number of poles included in the above orders	272
Permits granted by the Board of Aldermen to remove poles	62
Number of poles included in the above orders	203
Number of streets or avenues included in above orders	103
Number of new poles set in new locations	121
Number of poles removed	266
Number of poles reset, straightened, renewed etc.	922
Number of new pole locations selected	278
Number of poles now standing	14,648
Amount of dead wire removed by Wire Department (in feet)	308,452
Defect notices sent out	2,510
Number of defects included in these notices	5,362
Number of defects corrected	5,081
Notices of new work and special inspections	11,544
Amount of wire removed by owners (in feet)	3,523,457

The Board of Aldermen have also granted the following orders which come under the jurisdiction of this department, inasmuch as they pertain in one way or another to the overhead or underground electric wires.

Police signal post locations	1
Fire alarm post and test box locations	7
Extensions of time on permits previously issued	10
Attachments of one company's wires to poles of another	4
To stretch overhead wires across street	6
To lay underground conduits across street	1
Extension of street railway tracks, etc.	20
Erection of derricks, stretching guy ropes, etc.	20
Moving buildings, etc.	6
Transfer of poles from one company to another	8
Total	83

The following companies and individuals have laid new conduits, extended present service or added to their underground cables during the past year:

For Electric Light and Power Purposes.

Boston Elevated Railway Company.
Boston Consolidated Gas Company.
Boston & Maine Railroad.
Charlestown Gas and Electric Company.
Edison Electric Illuminating Company.

For Telephone, Telegraph, Signalling and Other Purposes.

Boston Automatic Fire Alarm Company.
Boston Auxiliary Fire Alarm Company.
Boston District Messenger Company.
Boston Low Tension Wire Association.
Fire Alarm Branch (Boston Fire Department).
Holmes Electric Protective Company.
Mutual District Messenger Company.
New England Telegraph Company.
New England Telephone and Telegraph Company.
Police Signal Service (Boston Police Department).
Quincy Market Cold Storage Warehouse Company.
Schoolhouse Commission (City of Boston).
Western Union Telegraph Company.

During the year the various companies doing underground work have opened seventy-three (73) different streets and avenues within the city limits for the purpose of building new conduits, or extending and enlarging their existing conduits; thirty-eight (38) of these were in the original underground district or the congested portion of the city lying north of Dover and Berkeley streets, while the remaining thirty-five (35) were scattered throughout the rest of the city and suburbs.

The electrical approvals of the department for opening the streets for underground electrical work during the year numbered one thousand two hundred and twenty-eight (1,228); one thousand four hundred and twenty-one reports have been made by the district inspectors on this work, which called for over eight thousand four hundred (8,400) inspections.

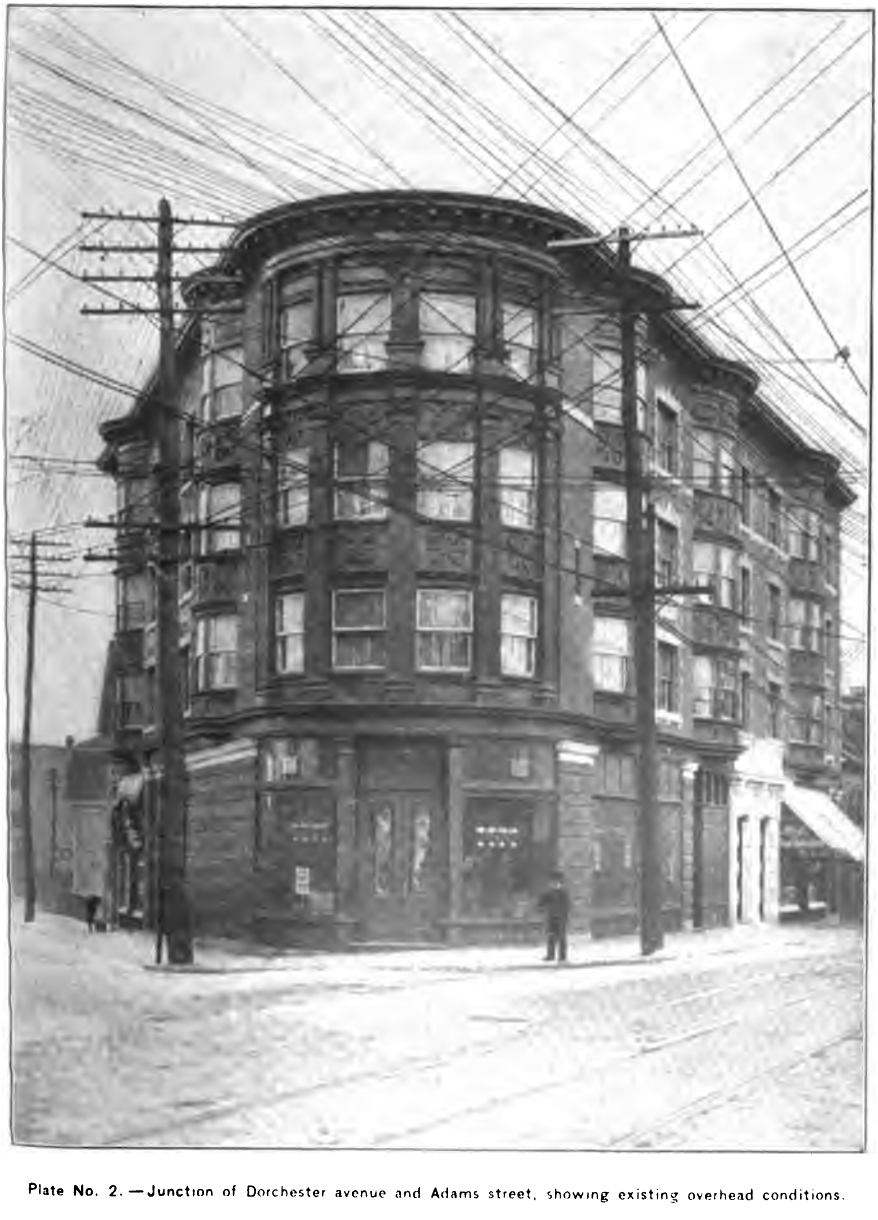


Plate No. 2.—Junction of Dorchester avenue and Adams street, showing existing overhead conditions.

Character of Cables Used by the Various Companies.

COMPANY.	Kind of Insulation.	Sizes.
Boston Automatic Fire Alarm Co..	Rubber..........	2, 4, 6, 10, 25 and 30 conductor.
Boston Auxiliary Fire Alarm Co...	Rubber..........	4 conductor.
Boston Consolidated Gas Co......	Rubber..........	2 and 3 conductor, No. 4, 6 and 8.
Boston District Messenger Co.....	Rubber..........	2 conductor.
Boston Elevated Railway Co......	Rubber..........	500,000 C.M. to 2,000,000 C.M.
Boston & Maine Railroad.......	Varnished cambric.	0000 and No. 2.
Charlestown Gas and Electric Co..	Rubber, varnished cambric........	0000, No. 2 and No. 4.
Edison Electric Illuminating Co...	Rubber and paper..	No. 6 to 1,000,000 C.M.
Fire Alarm Branch (B. F. D.).....	Rubber..........	6, 10 and 19 conductor.
Holmes Electric Protective Co....	Rubber..........	20 and 50 conductor.
Mutual District Messenger Co.....	Rubber..........	10, 50 and 150 conductor.
New England Telegraph Co.......	Paper............	75 conductor.
New England Tel. and Tel. Co.....	Paper............	15 pair to 600 pair.
Quincy Market Cold Storage Warehouse Co................	Rubber..........	No. 0 and No. 8.
Schoolhouse Commission........	Rubber..........	No. 2, 4, 6 and 8 conductor.
Western Union Telegraph Co......	Paper............	200 conductor.

Table Showing the Underground Electric Service of Boston, by yearly installation, 1894–1908.

YEAR.	Feet of Conduit Installed.	Feet of Single Duct Installed.	Feet of Cable Installed.	Number of Manholes Installed.	Number of Services Installed.	Feet of Edison Three-wire Tube Installed.	Number of Distribution Boxes (E. E. I.)
1894*.......	213,160	1,762,401	1,341,731	1,322	3,286	273,473	381
1895.......	131,128	537,935	1,086,957	555	894	33,233	5
1896.......	146,759	711,081	1,088,012	585	1,108	37,165	11
1897.......	154,580	742,392	853,794	782	1,099	46,481	40
1898.......	112,254	835,180	1,202,914	556	947	13,463	6
1899.......	122,603	763,636	1,613,871	516	912	17,843	14
1900.......	145,163	816,968	784,488	582	1,035	34,136	24
1901.......	115,318	797,674	979,371	422	824	24,762	37
1902.......	87,396	529,383	784,032	327	1,000	28,496	42
1903.......	67,614	506,452	557,419	268	895	20,057	16
1904.......	46,539	365,162	486,474	176	642	13,080	12
1905.......	62,095	423,699	597,766	282	794	14,129	7
1906.......	84,465	627,428	534,675	366	976	14,959	9
1907.......	41,652	207,150	485,526	184	703	11,511	8
1908.......	41,374	258,815	417,228	220	747	7,045	8
Totals....	1,572,100	9,885,356	12,814,258	7,143	15,862	589,833	620

* Includes underground service prior to formation of Wire Department in 1894.

Table Showing the Underground Work for the Year 1908.

COMPANY.	Feet of Conduit.	Feet of Duct.	Feet of Cable.	Number of Manholes.	Number of Services.
Boston Automatic Fire Alarm Company	....	....	7,400	......	.....
Boston Auxiliary Fire Alarm Company	....	327	675	......	3
Boston Consolidated Gas Company	....	227	528	......	8
Boston District Messenger Company	....	....	100	......	.....
Boston Elevated Railway Company	14,977	98,394	73,862	82	77
Boston & Maine Railroad	130	720	850	2	.....
Boston Low Tension Wire Association	2,962	6,553	....	9	13
Charlestown Gas and Electric Company	339	757	1,247	3	5
Edison Electric Illuminating Company	17,936	127,337	223,776	98	473
Fire Alarm Branch (B. F. D.)	25	793	11,920	1	15
Holmes Electric Protective Company	....	....	1,102	......	.....
Mutual District Messenger Company	....	....	4,227	......	.....
New England Telegraph Company	....	....	10,076	......	.....
New England Tel. and Tel. Co.	2,860	19,222	77,409	20	147
Police Signal Service (B. P. D.)	85	85	....	1	1
Quincy Mkt. Cold Storage Warehouse Co.	80	150	700	......	1
Schoolhouse Commission	1,010	1,235	2,335	......	1
Western Union Telegraph Company	970	3,015	1,021	4	3
Totals	41,374	258,815	417,228	220	747

NOTE. — Main and feeder tube or the solid system distribution boxes of the Edison Electric Illuminating Company are not included in the above figures. There were 7,045 feet of tube laid during the year, of this 695 feet is reckoned as conduit; 8 new distribution boxes were installed.

Table Showing Overhead Electrical Condition of Boston and Some of the Work Accomplished from 1894 to 1908, Inclusive.

AR.	Number of Poles in District.	Amount of Overhead Wire in Feet in the District. Approximate.	Number of Poles Set in City.	Number of Poles Standing in City.	Number of Defect Notices Sent Out.	Number of Defects in Notices.	Number of Defects Reported Corrected.	Number of Poles Removed.	Number of Fixtures Removed.	Amount of Wire Removed by Owners.	Amount of Wire Removed by Wire Department.	Total Amount of Wire Removed in Feet.
4....	333	5,174,550	.....	12,398	......	4,674	......	*73	217	1,814,650	881,150	2,695,800
5....	94	9,916,860	.....	12,979	......	15,889	......	*94	643	5,332,600	2,740,425	8,073,025
6....	182	13,719,670	.....	14,267	1,760	11,445	......	*138	325	5,500,481	1,995,350	7,545,831
7....	134	2,721,550	.....	15,000	1,940	7,596	......	.....	774	7,993,712	1,663,650	9,657,362
8....	.....	....	424	15,355	3,693	15,963	3,029	*52	661	2,034,420	836,100	2,871,720
9....	No	district this	year.		3,279	9,800	1,924	*40	825	....	348,275	348,275
0....	129	500,000	1,116	......	2,147	5,041	4,270	215	535	20,160	272,150	292,310
1....	54	157,200	1,148	14,019	4,409	11,215	9,576	332	375	1,168,293	276,690	1,444,983
2....	183	350,988	†738	14,607	3,419	8,256	9,410	150	162	3,976,124	263,325	4,239,449
3....	136	196,895	639	14,999	2,576	6,688	7,704	247	138	1,720,468	264,370	1,984,838
4....	191	1,003,200	211	14,954	1,615	5,431	4,579	256	141	2,931,237	251,790	3,183,027
5....	175	273,000	158	14,968	1,456	3,986	3,355	144	60	1,818,859	268,915	2,087,774
6....	225	746,000	130	15,000	1,554	3,513	3,623	98	32	3,773,420	381,750	4,155,170
7....	123	297,000	38	14,793	1,693	3,887	4,052	245	7	4,442,947	281,860	4,724,807
8....	154	248,000	121	14,648	2,510	5,362	5,081	266	.....	3,523,457	308,452	3,831,909
als..	2,113	35,304,913	4,723	14,648	32,051	118,746	56,603	2,350	4,895	46,050,828	11,034,252	57,136,280

OTE.— No official survey was made of the pole lines throughout the entire city until 1900–1901; this accounts the somewhat incomplete and possible inaccuracy of these records for the years previous to 1900.

Inside the prescribed underground district for this year only; number in rest of city not recorded.

A different figure appears in the annual report for this year (998 poles being reported set and 270 removed); was due to the record of permits issued, rather than the returns of work actually done, having been used.

Table Showing the Amount and Distribution of Boston's Electrical Power, January 31, 1906.

	Total Rated Horse Power of Boilers.	Total Rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of Stations.
oston Elevated Railway Company	28,770	54,450	44,670	496	4,956	153,860	8
dison Electric Illuminating Company.....	22,743	44,840	635,233	9,851	7,455	28,030	13
harlestown Gas and Electric Light Co....	....	....	....	....	54	261	....
oston Consolidated Gas Company........	1,250	3,100	74,000	600	76	472	1
lock Plant Electric Light Company......	273	417	5,250	....	3	16	1
udbury Building....................	202	230	719	3	33	171	1
team and Power Company..............	267	295	4,000	400	41	214	2
echt Building Plant..................	300	200	2,400	240	32	234	1
Isolated Plants......................	62,049	39,399	205,439	3,681	1,074	9,235	276
Totals..........................	115,854	142,931	971,711	15,271	13,724	192,493	303

* The capacity of generators for isolated plants in kilowatts, 21,287.

Table Showing the Amount and Distribution of Boston's Electrical Power, January 31, 1907.

	Total Rated Horse Power of Boilers.	Total Rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of
Boston Elevated Railway Company	30,914	59,170	60,728	569	4,911	191,307	
Edison Electric Illuminating Company	23,659	47,575	686,358	9,581	8,439	30,839	
Charlestown Gas and Electric Light Co.	....	....	....	....	80	392	...
Boston Consolidated Gas Company	1,250	3,100	80,000	600	101	469	
Block Plant Electric Light Company	273	417	5,250	....	3	16	
Sudbury Building	202	230	727	2	25	114	
Steam and Power Company	267	295	4,000	400	60	294	
Hecht Building Plant	300	200	2,400	240	32	234	
* Isolated Plants	64,921	42,792	221,415	3,771	1,297	10,651	2
Totals	121,786	153,779	1,060,878	15,163	14,948	234,316	3

* The capacity of generators for isolated plants in kilowatts, 21,087.

January 31, 1908.

	Total Rated Horse Power of Boilers.	Total Rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of
Boston Elevated Railway Company	39,138	64,950	66,149	625	5,401	226.607	
Edison Electric Illuminating Company	25,456	71,200	749,087	9,169	9,200	35.953	
Charlestown Gas and Electric Light Co.	475	140	....	....	80	503	..
Boston Consolidated Gas Company	1,500	3,100	96,170	604	121	486	
Block Plant Electric Light Company	273	417	5,250	....	3	16	
Sudbury Building	202	230	656	....	30	140	
Steam and Power Company	267	295	4,000	400	60	294	
Hecht Building Plant	300	200	2,400	240	32	234	
* Isolated Plants	64,859	44,471	223,000	3,869	1,472	11,428	3
Totals	132,470	185,003	1,146,712	14,907	16,399	275,661	3

* The capacity of generators for isolated plants in kilowatts, 22,251.

January 31, 1909.

	Total Rated Horse Power of Boilers.	Total Rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of
Boston Elevated Railway Company	41,244	74,950	73,703	685	6,439	271,204	
Edison Electric Illuminating Company	32,642	87,200	824,478	8,813	9,859	38,626	
Charlestown Gas and Electric Light Co.	475	140	....	....	100	575	..
Boston Consolidated Gas Company	1,625	3,200	101,227	604	132	570	
Block Plant Electric Light Company	273	417	5,250	....	3	16	
Sudbury Building	202	230	688	....	30	140	
Steam and Power Company	267	295	4,000	400	68	301	
Hecht Building Plant	300	200	2,400	240	32	234	
* Isolated Plants	69,734	49,768	237,909	3,866	1,688	14,986	3
Totals	146,762	236,400	1,249,655	14,608	18,351	326,652	3

* The capacity of generators for isolated plants in kilowatts, 25,702.

Table Showing the Increase of Electrical Output from 1894 to 1908, Inclusive.

	1894.	1895.	1896.	1897.	1898.	1899.	1900.
Incandescent lights	219,653	285,155	324,271	357,838	424,443	499.906	660.
Arc lights	6,598	7,915	8,172	9,584	13,094	12.796	12.
Motors	4,036	4,682	?	6,447	7,070	7,779	9.
Horse power of motors	?	?	?	48,641	84,002	90,890	102.3

	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
Incandescent lights	739,779	782,711	792,059	874,539	971,711	1,060,878	1,146,712	1,249.65
Arc lights	14,055	13,365	14,001	14,441	15,271	15,163	14,907	14.60
Motors	9,480	11,632	12,344	13,250	13,724	14,948	16,399	18.3
Horse power of motors	145,565	164,625	168,500	179,910	192,493	234,316	275,661	326.6

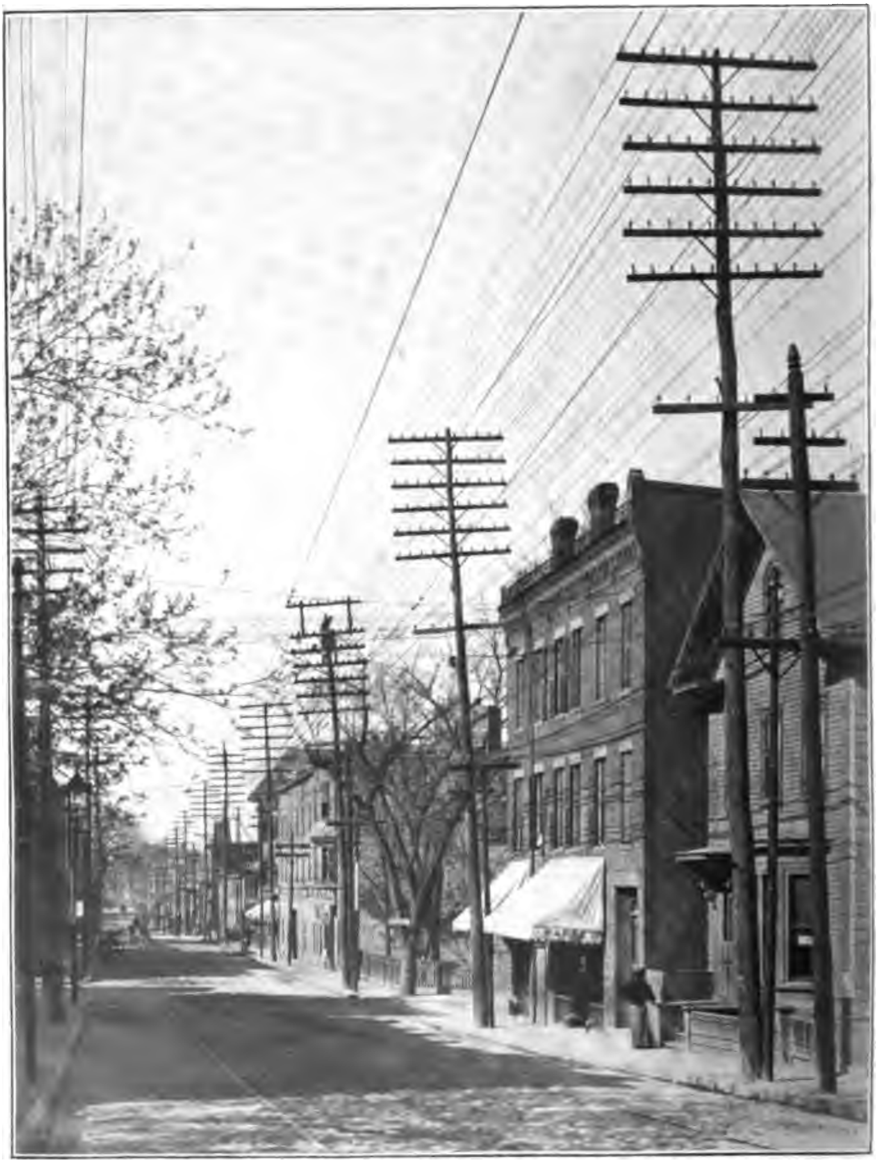


Plate No. 3. — Hampden street, north from Eustis street (with wires).

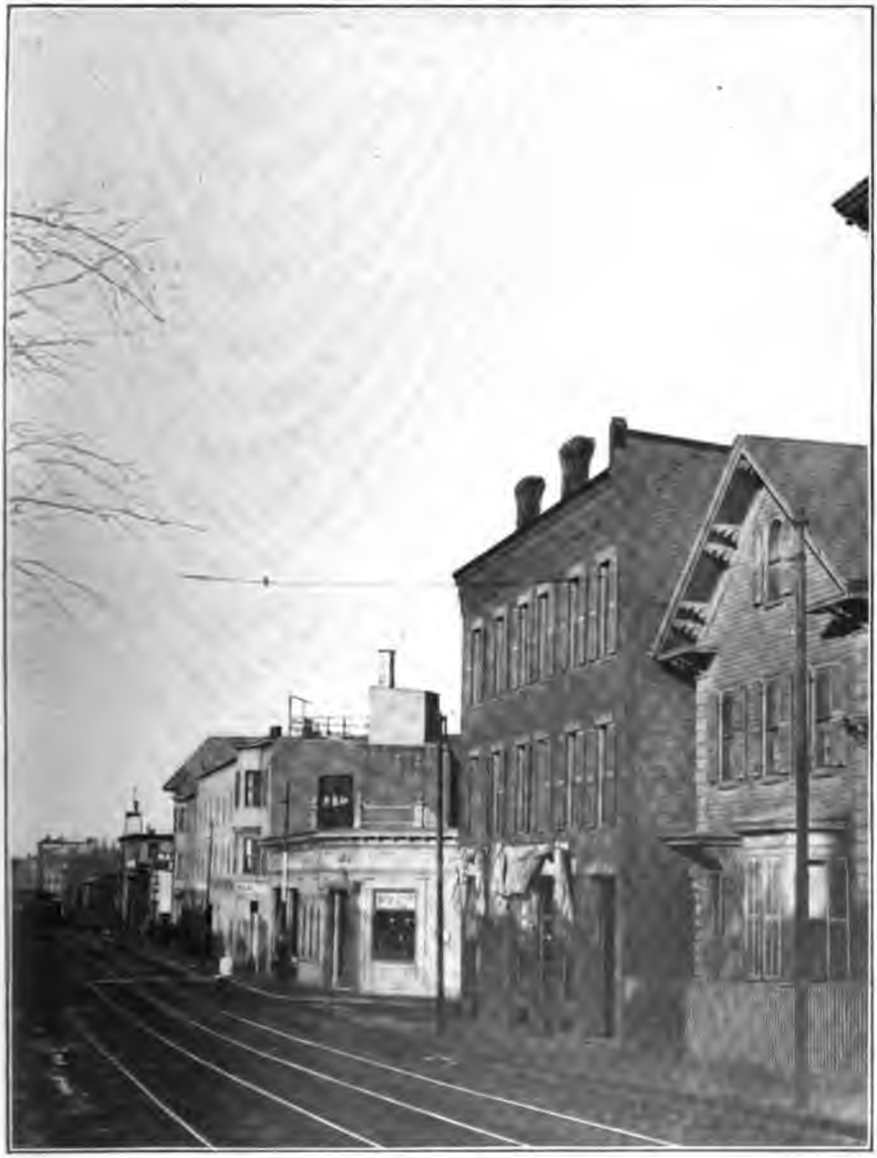


Plate No. 4. — Hampden street, north from Eustis street (without wires).

INTERIOR DIVISION.

It is not necessary to make comparisons between the days when electricity first began to be a potent factor for light, heat and power purposes and the present, to illustrate the rapid and constant increase in demand for electrical power, the increase in equipment to meet the demand, and the consequent increase in the duties of the Wire Department.

It is but five years ago that the annual report of this department noted the installation (completed in 1904) of a 5,000 kilowatt Turbo-Generator at the Edison Electric Illuminating Company's L Street Station, South Boston. This was well worth special mention, as it not only represented a new type of apparatus, but at that time it was the largest generator in this city and one of the largest in the country, there being but two others equal and none exceeding same in capacity. This generator was later re-rated at 7,500 kilowatt capacity. Since that time, three other Turbo-Generators of a rated capacity of 7,500 kilowatt each have been installed at the L Street Station. The exigencies of the demand and the interest of efficiency has resulted, however, in the replacing of the first mentioned generator with a 12,000 kilowatt Turbo-Generator, which was put in operation the last of the year 1908, and two more 12,000 kilowatt machines have been contracted for, to be installed as soon as practicable and replace two of the 7,500 kilowatt machines at present in service.

In addition to the above, the Edison Electric Illuminating Company have increased the capacity of two of their sub-stations by the installation in each of 2,000 kilowatt motor generators and there have been installed four 1,000 kilowatt motor generators at their third station, Atlantic avenue, to be used for emergency service to reinforce L Street Station in case of accident, and they are at present building a new sub-station at the corner of Prince and Salem streets, this station to be used to distribute direct current to the underground network in vicinity, also to be used as a point of distribution for the alternating current service to and through Charlestown.

During the year many important changes have been made by the Boston Elevated Railway Company at their power stations. An extensive addition has been made to their Lincoln Power Station and two additional 2,700 kilowatt generators have been installed, a 2,700 kilowatt generator has been installed at their Charlestown Power Station, also a 2,700 kilowatt generator at their Harvard Station, extensive changes have been made in their switchboard equipments, combustible floors in several of their stations have been replaced with fire-proof floors and other fireproofing measures have been taken.

The advent of the new "Tungsten" incandescent lamps which have been introduced into Boston during the past year has been the cause of a large amount of work to the interior division in addition to that which it would ordinarily have had to contend with. There have been about 60,000 of these lamps installed during the year, the greater portion of the same replacing existing lamps and necessitating more or less changes in existing wiring.

This has necessarily resulted in the inspection of a large amount of old wiring, which, were it not for the conditions arising in connection with the introduction of the "Tungsten lamps," might not have received that attention, as the requirements of new work inspections are such that with the exception of the monthly inspections of theatres and the inspection of halls as required by chapter 450 of the Acts of 1904, and the inspection of the electrical equipments of our large department and other stores, a systematic inspection of old wiring is impossible with the facilities at hand.

During the year fires for which three or more alarms were given were responded to and all fires reported by the Fire Department, police or other interested parties as caused or supposed to have been caused by electrical wiring or apparatus have been carefully investigated and reported upon.

Accidents to persons in connection with wiring or electrical apparatus have also been the subjects of careful investigations. Only a very small proportion of the fires attributed by the daily press to electric wires are found upon investigation to be due to that cause. This is not remarkable, however, as usually there is no opportunity before the matter is printed for either the papers' representatives or the proper authorities to make a proper investigation as to cause of fire, and provided the cause is not plainly evident it seems to be the custom to report the cause as electrical for want of better information.

Of the twenty-three fires in buildings found upon investigation to have been due to electrical causes, eleven were very slight and entailed no insurance loss. The other twelve fires caused an insurance loss of nineteen thousand two hundred and seventy-six dollars and ninety-eight cents ($19,276.98).

The two most serious fires with insurance losses of $8,344.55 and $4,125.02 were in oil warehouses, the lighting equipments of which, in addition to that deterioration incident to age, had suffered deterioration due to nature of business for which premises were used.

The third largest loss, $3,166.55, was due to a combination of lighting wiring and dampness, the latter being the result of a leaky roof, a loss of $1,724.00 was attributed to a cross between electric lighting and telephone wires within building, and fires with insurance losses of $581.95, $560, $387, $164, $98.81, $55.10, $35, and $35 were attributed respectively to hot metal from blown fuse falling upon inflammable goods, grounding of rheostat, with consequent short circuit, short circuit (due to dampness) between wires run in paper conduit, defective operation of motor, incandescent lamp left in contact with combustible material, short circuit in a cutout cabinet, defective rheostat, and a short circuit between service wires.

There was one case during the year where a large quantity of current entered a building over a gas pipe, thence over a water pipe to ground, with consequent damage to piping system.

Of the fifteen accidents to persons that came to the attention of the department during the year but one was fatal.

Nine of the accidents were to employees of the companies owning and operating systems in connection with which accidents occurred, three were injured by a fallen trolley wire, one was injured by flash of short circuit caused by cutting into a low potential service cable with an adze, one was to a passenger on an elevated train, who received slight burns from flash of short circuit at a switch, while the fatal accident was to a thirteen year old boy who climbed to a place where he should not have been and reached up and grasped a live high potential arc circuit wire.

With the exception of the fatal accident, none of the accidents was serious.

The following is a complete summary of the work of the Interior Division for the year ending January 31, 1909:

Notices of new work received	11,044
Buildings in which wiring was completely examined,	1,475
Incandescent lights examined	1,123,626
Arc lights examined	6,059
Motors examined	5,997
Total horse power of motors examined	20,197
Services examined	675
Inspections made	24,624
Defects reported	1,776
Defects corrected	1,231
Other defects in process of correction	—

During the year there have been sixty-five fires or accidents to property, the origin of which was traced to electricity.

Fires in interior of buildings	23
Fires on outside walls of buildings	2
Fires at bridges	1
Fires on poles	5
Miscellaneous (exterior)	33
Miscellaneous (interior)	2
	66

Table Showing the Number and Classification of Fires, etc., Due to Electrical Causes, from 1894 to 1908, Inclusive.

	1894.*	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
Fires on outside of buildings	4	7	14	11	22	6	5	8	3	2	5	4	1	....	
Fires in the interior of buildings	27	27	22	29	28	31	29	22	18	32	23	20	14	18	2
Fires on poles	5	4	3	3	6	1	7	10	3	2	5	3	2	5	
Bridge fires	....	6	2	1	4	2	3	1	1	3	3	4	4	7	
Deaths	....	....	3	3	....	3	4	6	2	....	3	2	2	7	
Injuries	11	17	13	16	11	16	4	21	13	9	15	17	12	13	14
Manhole explosions	1	3	2	5	....	5	1	5	5	1	3	3	2	4	....
Miscellaneous	12	27	26	45	22	7	20	33	12	12	40	25	36	38	35

* Record shown for 1894 is for five months only.

The following is a record of isolated plants in operation in this city:

Number of plants,	319.		
" boilers,	667,	total horse power,	69,734
" engines,	587,	" "	49,768
" generators,	576,	" k.w. capacity,	25,701
" motors,	1,688,	" horse power,	14,986
" incandescents,	237,909.		
" arcs,	3,866.		

The record of new plants installed and inspected is as follows:

Number of plants,	27.		
" boilers,	48,	total horse power,	6,934
" engines,	47,	" "	7,309
" generators,	57,	" k.w. capacity,	4,421
" motors,	372,	" horse power,	4,076
" incandescents,	20,329.		
" arcs,	81.		

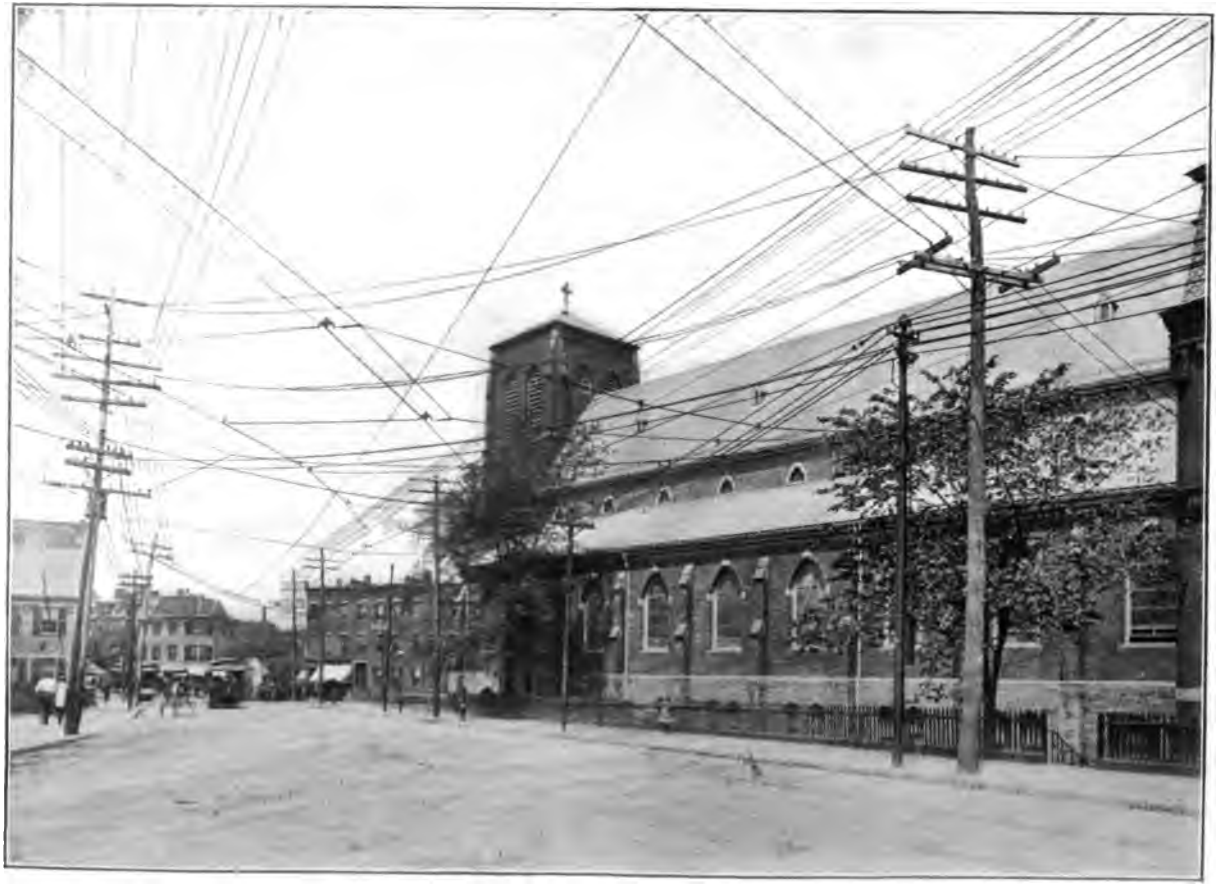


Plate No. 5. - Dudley street, from junction of Blue Hill avenue, (with wires).

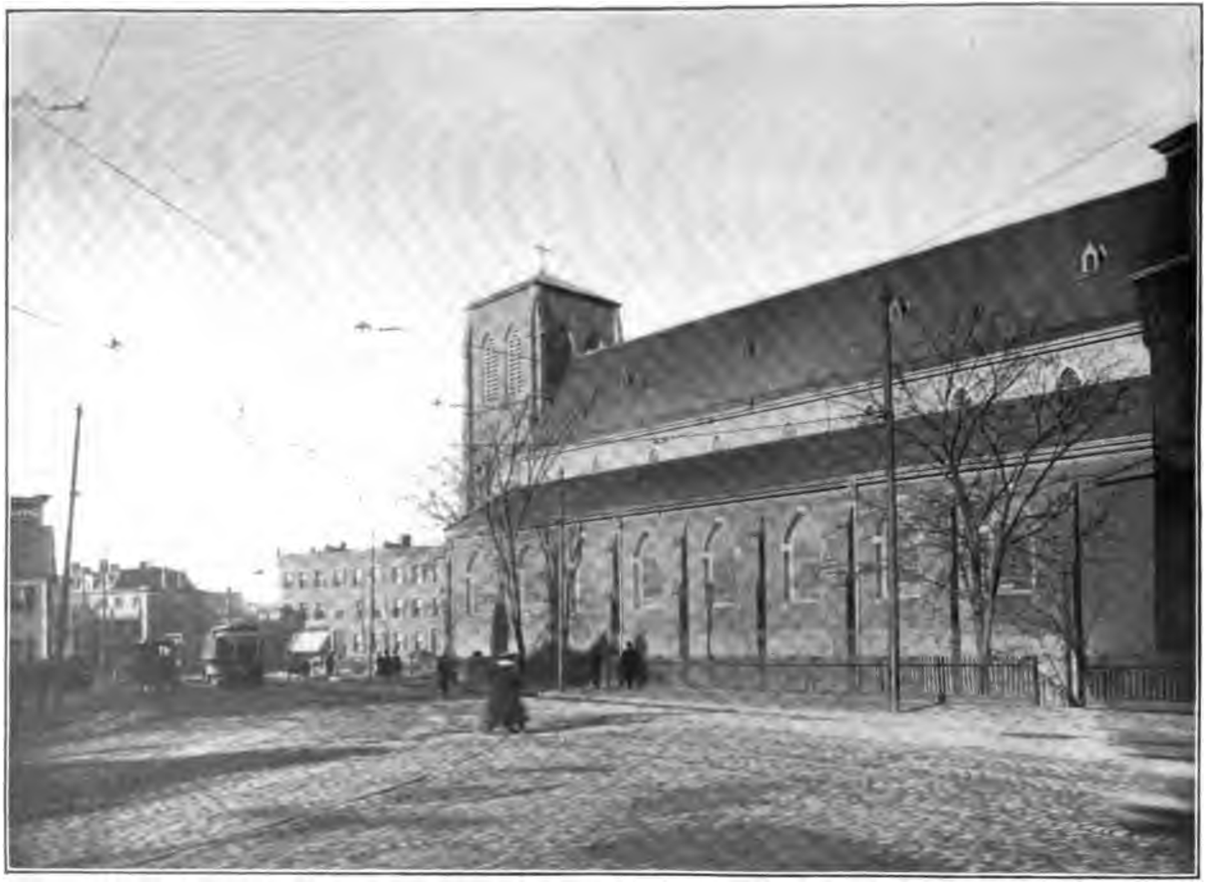


Plate No. 6. — Dudley street, from junction of Blue Hill avenue (without wires).

During the year ending January 31, 1909, there were fourteen old plants inspected, the equipment of which was as follows:

Number of boilers,	35,	total horse power,	3,591
" engines,	27,	" "	2,558
" generators,	29,	" k.w. capacity,	1,633
" motors,	125,	" horse power,	903
" incandescents,	17,505.		
" arcs,	106.		

The record of plants, the operation of which was discontinued during the year, is as follows:

Number of plants,	9.		
" boilers,	9,	total horse power,	845
" engines,	11,	" "	780
" generators,	12,	" k.w. capacity,	213
" motors,	59,	" horse power,	68
" incandescents,	2,598.		
" arcs,	20.		

Table Showing Inspection of Interior Wiring of Buildings, etc., from 1894 to 1901, Inclusive.

	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.
Notices of new work received...	1,428	3,984	4,383	4,799	5,355	5,749	5,859	9,107
Number of buildings, wiring completely examined........	173	359	395	473	451	567	570	692
Incandescent lights examined...	69,035	123,136	118,679	128,857	125,458	151,046	316,074	422,182
Arc lights examined..........	1,083	2,934	2,835	2,396	2,396	2,495	5,697	12,882
Motors examined............	272	776	908	1,121	1,027	1,225	1,922	3,275
Total horse power of motors examined................	840	83,566	3,247	3,739	5,681	6,967	11,150	16,444
Defects reported.............	610	4,890	9,505	2,318	1,661	2,369	2,274	2,349
Defects corrected............	406	3,608	8,737	1,452	926	1,846	1,622	1,928
Services examined...........	......	......	......	1,988	1,283	1,115	1,176	1,654
Inspections made............	......	......	......	......	9,472	12,476	12,609	23,111
Isolated plants in this city.....	......	......	......	......	......	203	271	281
Isolated plants inspected.......	......	......	......	......	......	......	......	34

Table Showing Inspection of Interior Wiring of Buildings, etc., from 1902 to 1908, Inclusive.

	1902.	1903.	1904.	1905.	1906.	1907.	1908.
Notices of new work received.........	10,272	8,590	7,983	9,317	10,412	9,465	11,044
Number of buildings, wiring completely examined......................	496	487	524	590	1,173	1,158	1,475
Incandescent lights examined.........	394,234	330,050	611,778	686,231	716,137	966,615	1,123,626
Arc lights examined................	10,882	2,716	5,738	6,028	4,469	5,909	6,059
Motors examined..................	3,006	2,465	2,966	3,006	4,619	5,477	5,997
Total horse power of motors examined..	12,531	11,151	11,790	11,667	21,725	23,347	20,197
Defects reported..................	1,810	1,274	1,073	1,289	1,425	1,945	1,776
Defects corrected..................	1,165	938	673	905	966	1,190	1,231
Services examined..................	1,174	819	571	595	780	773	675
Inspections made..................	23,962	19,635	19,224	23,588	27,286	28,265	24,624
Isolated plants in this city............	283	274	274	276	298	301	319
Isolated plants inspected.............	6	20	14	15	90	79	41

FIRES AND MISCELLANEOUS TROUBLES DUE TO ELECTRICITY, FEBRUARY 1, 1908, TO JANUARY 31, 1909.

February 7, 12.53 a. m., Box 466, Sullivan square; yard of the Boston Elevated Railway Company System; fire in elevated car No. 0112, caused by wire of electric car heater open-circuiting; severe arcing taking place and fire being communicated to woodwork of car.

February 15, about 4 p. m., Canterbury street, just west of Hyde Park avenue; horse belonging to Lawrence J. Hurmans, residing at No. 253 Ashland street, West Roxbury, came in contact with a broken guy wire which had fallen to street and was killed; guy wire was crossed with wire of an A. C. high potential circuit; severe storm in progress at the time.

February 15, during severe rain and wind storm, the following troubles in connection with overhead wires occurred:

About 4. p. m., two wires of primary alternating circuit burned off and fell to street at the corner of Vernon street and Shawmut avenue.

About 5.45 p. m., wires were reported on fire at the corner of Washington and Poplar streets, Roslindale; same was caused by wires of a primary alternating circuit swinging in contact with gooseneck of street lamp.

About 5.50 p. m., wires were reported burning at Eighth street, South Boston; same was the result of an iron wire becoming crossed with an arc circuit.

About 6.30 p. m., corner Fourth and M streets, South Boston; tree fire caused by arc circuit in contact with tree.

About 6.35 p. m., trouble was reported with wires at Charles River Bridge, West Roxbury; same was found to be due to cross between an arc circuit and a guy wire.

February 26, about 8.15 p. m., Commerce street and Atlantic avenue; members of the Fire Department called on account of burn out in arc light cables just above where they left standpipe from underground; severe storm in progress at the time.

February 26, 9.35 p. m., Box 428, Chelsea Bridge, Charlestown; fire at base of wooden pole located just south of South Draw, as a result of breakdown in insulation of arc light lead cables which ran up side of pole; damage slight; severe storm in progress at the time.

February 26, between 10 and 11 p. m., severe burn out in high potential cables in manhole of the Edison Electric Illuminating Company on L street, near entrance to the L-street Station of the Edison Electric Illuminating Company.

March 9, 8.08 a. m., Box 714, No. 80 East Concord street, Boston University School of Medicine; break down occurred in insulation of a branch circuit of rubber insulated wire, run in old type of interior conduit or paper tubing on inside of an outside brick wall, same being due to dampness; insulation of wire and the tubing was ignited, and fire was communicated to woodwork in the immediate vicinity; insurance loss, $387.

March 12, 6.03 p. m., Box 16, No. 84 State street; fire occurred in storeroom in basement containing letter files, etc.; same resulting from heat of a 32-candle power lamp igniting some papers upon which the lamp had been placed while lighted; considerable damage resulted to letters, records, etc., and about ten feet of shelving was destroyed; insurance loss, $98.81.

April 10, 9.57 a. m., Box 18, Adams square Subway Station; air pipe running along side of platform, then through into the new Washington Street Subway, became electrically charged by a trolley wire which was being installed in the new subway, making simultaneous contacts with air pipe and with live wire of lighting circuit. Arcing and flashing at various points along pipe at subway platform ignited sawdust and refuse material beneath platform; damage slight.

April 15, about 7.30 p. m., Kenilworth street; slight tree fire as a result of branches of same being in contact with wires of high potential primary A. C. circuit; raining hard at the time; report of trouble received from Fire Department.

April 15, Medway and Adams streets, about 7.30 p. m.; slight tree fire caused by branches of tree and high potential arc circuit being in contact; raining hard at time of trouble; report received from Fire Department.

April 15, about 7.30 p. m., Washington and Roslin streets, Dorchester; slight tree fire caused by branches of tree and high potential arc circuit wire being in contact at the time; raining hard at time of trouble; report received from Fire Department.

April 30, 11.41 p. m., Box 245, pole W. D. 6242; breakdown in insulation of one conductor of a high potential A. C. circuit resulted in arcing and burning at point where current left conductor to pole; severe rain storm in progress at the time.

May 8, 12.19 a. m., Box 645; during a severe rain storm, break down occurred in insulation of arc circuit of the Edison Electric Illuminating Company, used for street lighting; break down occurred just above where wires left underground terminal pipe on pole in Central square, also at base of first arc lamp pole on Meridian street Bridge on East Boston end; no damage except to wires and loss of service.

During unusually severe wind and rain storms which occurred May 30 and 31 numerous electrical troubles occurred, the following coming to our attention:

May 30, 10 p. m., near corner of Amory and School streets, two wires of high potential alternating circuit came in contact with tree, burned off and fell to street.

May 30, about 11 p. m., Church street, West Roxbury; two wires of high potential A. C. circuit in contact with tree, burned off and fell to ground.

May 30, 11.30 p. m., Amory and Boylston streets; two wires of high potential A. C. circuit in contact with tree, burned off and fell to ground.

May 30, 10.23 p. m., an alarm from Box 556, given on account of wire of high potential A. C. circuit at the corner of Rockwood and Pond streets, Jamaica Plain; burned off and fell to ground.

May 30, 11.23 p. m., Mt. Pleasant avenue and Dudley street; tree fire due to wires of high potential A. C. circuit being in contact with tree; members of Hook & Ladder 4 responded on still alarm.

May 31, 8 p.m., corner Harvard street and Harvard avenue, Dorchester; tree fire caused by high potential arc circuit being in contact with tree; reported by Engine 18.

May 31, 8 p. m., River street, between Morton and Temple streets, Dorchester; tree fire due to high potential arc circuit being in contact with same; reported by Ladder 6.

May 31, 8.03 p. m., opposite 8 Minot street, Dorchester; tree fire due to high potential arc circuit being in contact with tree; reported by Engine 20.

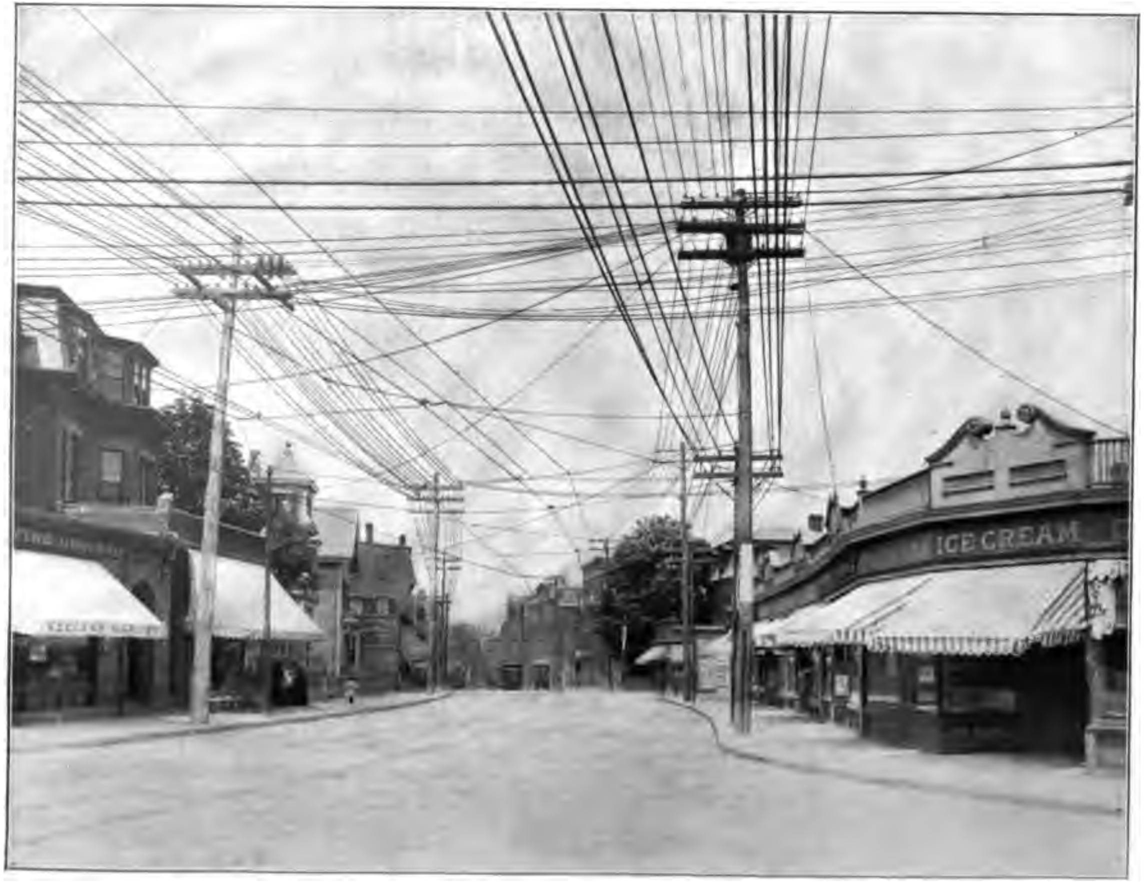
May 31, 7.42 p. m., Box 192, near corner Dorchester avenue and Romsey street, Dorchester; limb of tree broke off and fell on two high potential arc circuits, short-circuiting same, with resulting arcing and burning.

May 31, 12.02 a. m., Box 192, corner Pleasant street, and Savin Hill avenue; tree fire caused by wires of high potential A. C. circuit in contact with tree.

May 31, 7.55 p. m., Box 917, opposite 251 Hancock street; tree fire caused by wire of high potential arc circuit being in contact with tree.

May 31, 8 p. m., Dorchester avenue, near Centre street; tree fire due to wire of high potential arc circuit being in contact with tree.

June 25, 10.02 p. m., Box 43, No. 162 Tremont street; fire on fifth floor, consisting of the burning of insulation on wires


ICE CREAM

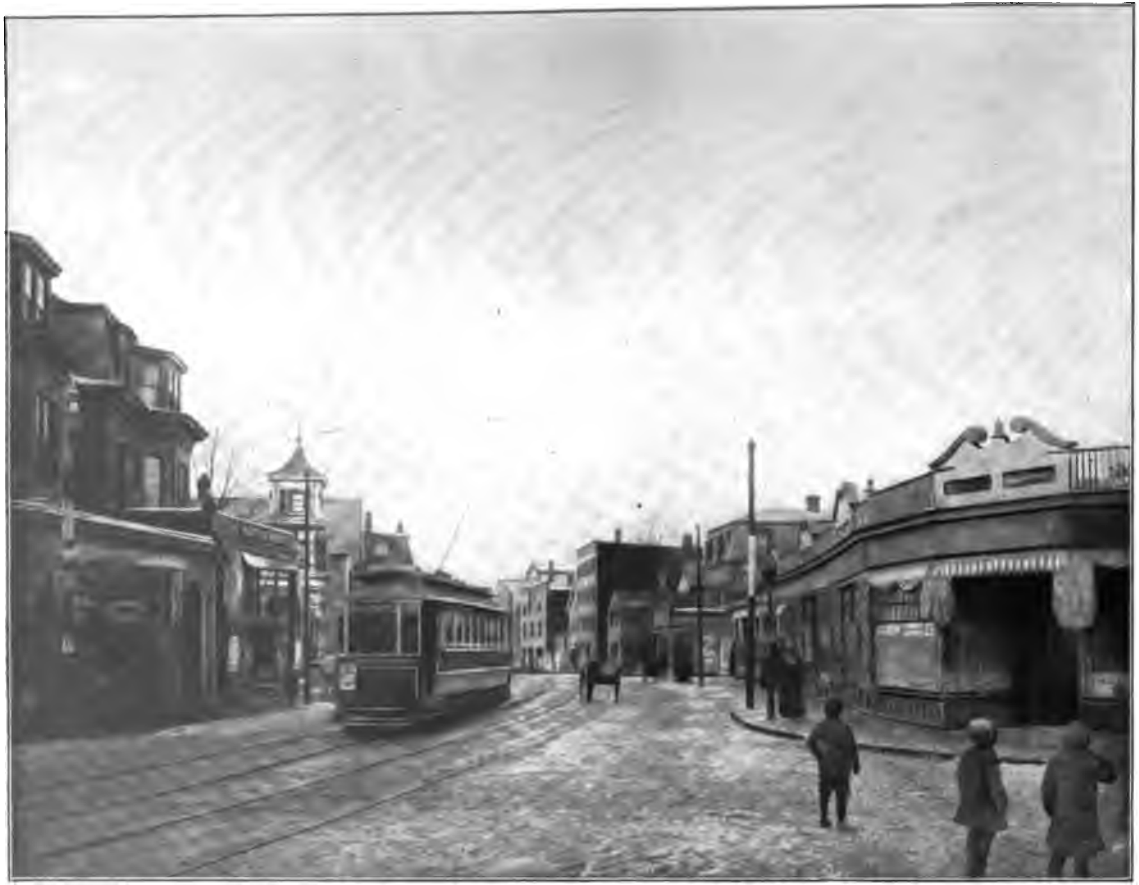


Plate No. 8. — Dudley street, west from Cottage street (without wires).

in an iron cutout cabinet; with the exception of smoking of ceiling damage was confined to contents of cutout cabinet; insurance loss $55.10.

July 7, 9.15 a. m., Automatic Alarm, No. 39 Central Wharf; electrolytic action caused a hole in gas pipe elbow and escaping gas from same was ignited probably by an arc at fuse terminal, a loose connection being found at same.

July 16, 3 p. m., Box 77, No. 81 Wareham street; slight fire in basement, due to the overheating of the rheostat used in connection with the freight elevator motor; insurance loss $35.

July 22, 1.28 a. m., at pole corner Northampton street and Harrison avenue; during rainstorm, insulation on arc circuit broke down at a point just above where lead cable left underground pipe terminal; no damage except to cables; members of Fire Department called on still alarm.

August 15, 10.45 a. m., No. 70 Broad street; unused metal water conductor stored between floor timbers in basement came in contact with live terminals of electric service cutout, conductor at the same time being in contact with gas pipe; hole melted in gas pipe and gas which issued from same was ignited; extinguished by occupants without damage other than that done to pipe.

August 24, 9.32 a. m., Battery street, in front of Police Station No. 8; slight fire in manhole due to burn-out in underground electric mains.

August 31, 10.35 p. m., No. 225 Commonwealth avenue; burn-out occurred in underground electric lighting cable entering this building; cable destroyed but no fire communicated by same.

On August 7, at 5.23 p. m., an alarm was given from Box 37 for a fire in building No. 198 Milk street and No. 99 Central street, occupied by Masury Young, oils and paints; this fire was not reported as due to electrical causes, but as a result of examination made by this department it is our opinion that, while it could not be absolutely proven, fire was probably due to a short circuit on electric light wiring as a result of defective condition of same; insurance loss, $4,125.02.

August 29, about 10 a. m., third floor, No. 77–79 Washington street North; slight fire caused by an overheated electric hand iron which had been left in circuit the night previous, when work was discontinued for the day; no trouble occurred during the night as current was cut out of the building, but when current was turned on again in the morning iron heated until finally fire was communicated to table upon which it stood and goods upon same; an automatic alarm was given for this fire; current supplied by plant in building where trouble occurred.

September 11, 5.49 a. m., Box 23, No. 41 Cambridge street; underground service of the Edison Electric Illuminating Company short circuited and one wire burned off at point just inside basement wall; no damage except to service.

September 12, 11.03 a. m., corner St. Cecilia and Belvidere streets; burn-out occurred in underground service cable of the Edison Electric Illuminating Company at point just inside basement wall; beyond slight burning and charring of adjacent woodwork no damage except to cable; Engine 33 and Hook and Ladder 13 called on still alarm.

September 23, 3.55 p. m., Box 95, No. 320–322 Boylston street; fire consisted of the burning of insulation of electric lighting cable in elevator well feeding incandescent lamps in elevator car; caused by defective splice in same being made by some person unknown, splice opening up and arc between two ends of wire igniting insulation on cable; fire confined to the insulation on cable; current supplied by system of the Edison Electric Illuminating Company.

October 10, 7.40 a. m., Box 16, No. 55 Blackstone street; small fire on fourth floor caused by defective operation of 10-horse power motor used to operate freight elevator; insurance loss, $164.

October 28, about 5.17 p. m., insulation broke down on wires of two arc circuits at point where they were crossed and in contact on pole corner Southampton street and Dorchester avenue, with consequent arcing and flashing; damage, which was confined to wires, was slight.

October 26, corner Dorchester avenue and Ellet street, Dorchester; arc lamp pole electrically charged resulted in slight shocks to passers-by.

October 26, about 11.20 p. m., corner of Adams and Arcadia streets, Dorchester; tree fire caused by high potential arc circuit in contact with small limb of tree; as a result of arcing and flashing limb of tree was burned sufficiently to cause same to break and fall to the ground; during this as well as the two preceding mentioned troubles a severe rainstorm was in progress.

October 27, 3.49 p. m., Box 38, followed later by second and third alarms, No. 67 Long Wharf; fire probably caused by short circuit due to the deterioration of insulation of circuit from oil drippings on wires; insurance loss, $8,344.55.

November 3, in front of No. 256 Massachusetts avenue; burn-out occurred in underground mains of the Edison Electric Illuminating Company current passing over pipe containing same (it being solid tube system) to service gas pipe with which Edison tube was in contact; a hole was melted in gas pipe at point of contact.

November 4, about 5.31 p. m., Kneeland street, between South and Lincoln streets; hydrant cover was lifted and turned over on the ground, a slight explosion occurring as a result of burn-out in underground electric mains.

November 4, 6.35 p. m., Centre street, opposite Gardner street; tree fire caused by high potential arc circuit in contact with same.

November 9, 9.40 p. m., Talbot avenue and Brent street, Dorchester; members of Fire Department called on account of arcing wires; trouble was due to series arc circuit wires coming in contact with guy wire of the Boston Elevated Railway Company; wet night.

November 10, 9.40 p. m., opposite No. 51 Copeland street; tree fire reported by Fire Department; wires of primary alternating circuit in contact with twigs of tree caused arcing and flashing at points of contact; no damage; wet night.

November 30, 1.51 a. m., Box 13, No. 171 North street; breakdown occurred in insulation of underground service wires at point just where they left service box; no damage except to service and slight charring and burning of woodwork in the vicinity; insurance loss, $35.

December 5, No. 572–8 Washington street, 9.45 p. m.; engine 26 called on still alarm for a slight fire due to arcing at a defective 10 ampere switch; damage confined to switch and wooden block upon which it was mounted.

December 5, No. 163 Tremont street, 6.58 p. m.; Engine 26 was called on still alarm; fire which started at telephone connecting board was evidently due to cross between telephone and electric lighting system of building; insurance loss $1,724.

December 14, about 3.30 p. m., No. 90 Tremont street; the end of a wire which had been cut off and left bare of insulation came in contact with a metal rod lying on floor, the other end of rod being in contact with support to cash-carrier system, which system was also supported by wires run to screw eyes in ceiling. From one of these screw eyes wire used to support a streamer of holly was run to another screw eye in ceiling which was grounded. When rod before mentioned was kicked and rolled in contact with wire and upright to cash system, current passed over same through cash system and wires before mentioned, melting off wire carrying holly streamer, hot metal dropping on to and burning holes in fourteen shirt waists.

December 19, 6.52 a. m., Box 50, basement of No. 107

Kingston street; defective motor on fifth floor of building caused fuse in basement to melt, hot metal dropping on cotton goods and igniting same; insurance loss $581.95.

December 22, 10.08 a. m., Box 36, No. 257 Washington street; fire occured in house on roof in which was located elevator motor and machinery; resistance used in connection with this motor became grounded, resulting in short circuit; insulation of wires was ignited and fire was communicated to oil, etc., around motor; insurance loss $560.

December 22, No. 160 Tremont street; on this date evidence of slight fire was found; sheathed backing for two sets of shelving at point where 1½-inch gas pipe passed through same showed evidence of burning and charring; gas pipe was in contact with water pipe just beyond this point. The union used in gas pipe at point just before contact with water pipe was made was so badly affected by heat that packing melted and gas was leaking. Trouble was caused by a heavy flow of electric current which entered over gas pipe and passed to water pipe, there being trouble in underground electric system in street.

December 30, 8.19 p. m., Warren street, about opposite Holborn street, Roxbury; tree fire due to high potential A. C. circuit wires being in contact with tree; no damage.

January 2, 1909, 2.49 a. m., corner St. Cecilia and Scotia streets; stable of E. O. Fitch & Co.; Fire Department called on still alarm on account of burn-out in underground service cable of the Edison Electric Illuminating Company entering basement of building; no damage except to cable.

January 5, 12.15 p. m., No. 564 Washington street; metal reel upon which moving picture film was rolled was brought in contact with blades of a switch; short circuit resulted, and film was ignited; no damage except to film, which was destroyed.

January 20, 8.34 p. m., Nos. 27–29 Leather square; members of Fire Department were called on still alarm on account of burn-out in series arc light cable at point just above where same left standpipe on division wall at said numbers; no damage except to cable.

January 21, 8.17 p. m., Box 89; fire in one story brick building on Clarendon street, known as the Augustus Lowell Building, and owned and occupied by the Massachusetts Institute of Technology; leaky roof permitted water to fall on electric lighting wires, insulation on one of the wires becoming so affected that leakage of current and electrolytic action took place, corrosion thereby ultimately causing wire to open at that point and an arc between ends of wire ignited

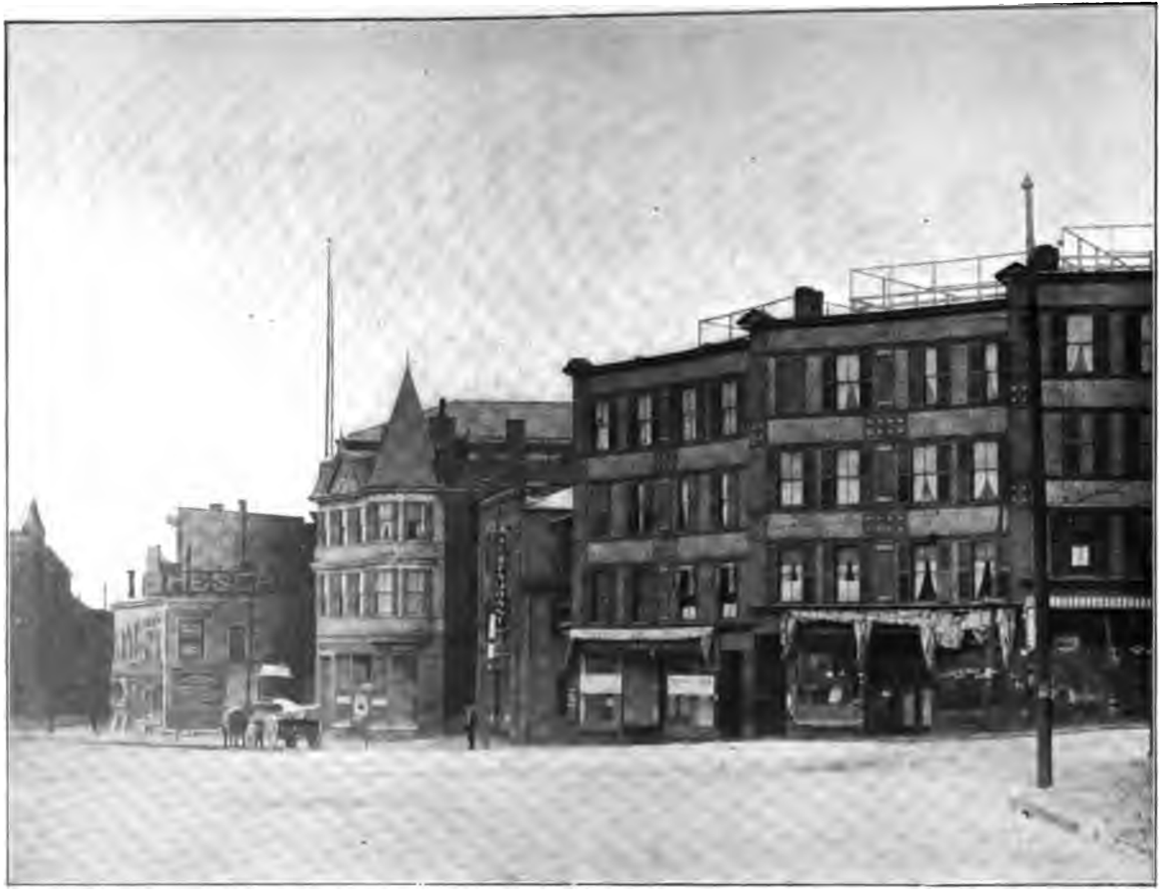


Plate No. 10. — Columbus avenue, north from Roxbury street (without wires).

rubber insulation on wire, fire being communicated to surrounding woodwork; insurance loss $3,166.55.

January 23, 9.50 p. m., Blue Hill avenue, near Woodcliff street; slight fire on pole due to the grounding of current from high potential arc circuit of the Edison Electric Illuminating Company.

ACCIDENTS TO PERSONS DUE TO ELECTRICITY.

April 12, about 4.45 p. m., Fannie Rosenberg, residing at No. 41 Billerica street, Boston, Mr. I. Gilberg, residing at No. 263 Chelsea street, East Boston, and Louis Herman, residing at No. 61 Main street, Charlestown, received injuries from a fallen trolley wire on Meridian Street Bridge, they being on the East Boston side of the drawbridge at the time. The falling of trolley wire was due to conditions existing as one of the results of the conflagration in progress in Chelsea at the time.

July 8, about 2.30 p. m., B. Austin, residing at No. 9 Gustin street, South Boston, struck with his adze an electric service cable of the Edison Electric Illuminating Company, just inside the basement wall at No. 19 Eastern avenue. As a result of short circuit thus caused, Mr. Austin was painfully burned about the face.

July 23, about 1.44 a. m., James Brown, an employee of the Boston Elevated Railway Company, while at work on iron work of the extension of the State Street Station platform of the Atlantic avenue Elevated system, came in contact with the live third rail and received severe burns on the left side and the inner side of the upper portion of the left arm, on the inside or palm of the left hand, and on the right knee.

September 11, at about 8.15 p. m., Charles A. Roach, thirteen years of age, residing at No. 132 Braintree street, Allston, climbed up on one of the iron trusses of the Everett Street Bridge, and standing on the upper chord of truss reached up and placed his hand in contact with live electric light wire of the Boston Consolidated Gas Company, feeding street lamp on said bridge, receiving severe shock and burns, causing him to fall to bridge. Accident resulted fatally, the boy dying at the City Hospital Sunday afternoon, September 13.

October 14, Arthur H. Nelson, head lineman in charge of one of the emergency crews of the Boston Elevated Railway Company, while at work in connection with a track switch installation at corner of Dudley and Washington streets, came in contact with trolley wire circuit and grounded part of switch installation, receiving shock causing him to fall from ladder to the street. In addition to severe shaking up, as a result of fall, he received cuts to his head, but was not incapacitated for duty.

September 23, Daniel H. McNeil, a carpenter in the employ of the Boston Elevated Railway Company, was severely burned about the face and hands as a result of short circuit at Tower C, near the North Station of the elevated system of the Boston Elevated Railway company. Short circuit was the result of grounded air pipe and feeder tap being brought into direct contact where feeder tap was bolted to third rail.

November 11, Charles C. Buchanan, an oiler in the employ of the Edison Electric Illuminating Company, while attempting to install a fuse at their third station on Atlantic avenue, made a short circuit, causing severe burns to right hand.

November 20, A. L. McCormack, a wireman in the employ of the Boston Elevated Railway Company, received severe burns to the face as a result of switch blade which he was opening at the time coming in contact with grounded oil pipe.

November 20, James Dawley, a steel worker in the employ of the Boston Elevated Railway Company, while at work on platform extension at Rowe's Wharf Station, Atlantic avenue, brought a bar in contact with third rail and the iron elevated structure at the same time, receiving severe burns as a result of short circuit thereby caused.

November 20, William F. Hall, a steel worker in the employ of the Boston Elevated Railway Company, while at work on extension platform of the Northampton Street Station, slipped while tightening a bolt with an iron wrench, bringing wrench in contact with live third rail. As a result of short circuit thereby caused, he received burns to the wrist and slight injuries to face.

December 19, at about 10.20 a. m., Mr. L. W. Packard, an employee of the Laboratory Department of the Edison Company, came in electrical connection with 6,900 volt circuit while he was at work in back of switchboard. He received a severe shock, rendering him unconscious for a short time, also sustained severe burn on inside of right wrist and a burn on back of left hand.

January 17, 1909, at about 7.35 a. m., Guy L. Gardner, an employee of the Boston Elevated Railway Company, and John G. Selberg, a passenger, while on an elevated train between Thompson square and City square received burns as a result of short circuit at switch controlling current for car. Injuries not serious.

LIST OF WIRE DEPARTMENT EMPLOYEES JANUARY 31, 1909.

No.	Occupation.	Salary per Annum.
1	Commissioner	$5,000 00
1	Chief Inspector	2,000 00
1	Chief Clerk	1,600 00
2	Engineers	1,500 00
4	Inspectors	1,500 00
1	Clerk and Inspector	1,400 00
1	Clerk	1,200 00
9	Inspectors	1,200 00
6	Inspectors	1,100 00
5	Inspectors	1,000 00
2	Drivers	1,000 00
1	Stenographer	1,000 00
1	Stenciller	1,000 00
1	Deputy Inspector	800 00
1	Clerk and Deputy Inspector	700 00
1	Telephone Operator	600 00
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STATEMENT OF DEPARTMENT APPROPRIATION AND EXPENDITURES FROM FEBRUARY 1, 1908, TO JANUARY 31, 1909, INCLUSIVE.

Appropriation	$55,000 00
Income from sale of car tickets	72 15
Total amount available	$55,072 15

EXPENDITURES.

Salaries and wages:	
Patrick J. Kennedy, Commissioner to January 13, 1908, inclusive	$180 56
William Jackson, Acting Commissioner from January 14, 1908, to June 14, 1908, inclusive, paid as City Engineer.	
James E. Cole, Commissioner from June 15, 1908,	3,123 27
Employees	46,749 95
Horse keeping	1,335 13
Carried forward	$51,388 91

Brought forward	$51,388 91
Traveling expenses	1,129 47
Printing	1,030 93
Stationery	429 69
Telephone service	396 77
Instruments, tools, etc.	128 44
Office expenses	68 00
Boston Fire & Police Notification Co.	50 00
Advertising	40 24
	$54,662 45
Balance in Treasury	409 70
	$55,072 15

LIST OF PROPERTY OF THE WIRE DEPARTMENT.

1 High Potential Testing Apparatus.
1 Transformer.
1 Test Board, capacity 220 volts, 300 amperes.
1 Auxiliary Test Board, capacity 220 volts, 150 amperes.
1 Reflecting Galvanometer, Condenser, Telescope, Scales, etc.
1 Set Standard Resistance Coils.
1 Lamp Stand and Scale.
1 Shunt Coil.
1 Set Double Connector Posts.
1 Discharge Key.
1 Reversing Key.
1 Electrostatic Voltmeter, No. 70,647.
1 1,500-volt Direct Current Voltmeter, No. 3,438.
1 300-volt Weston Direct Current Voltmeter, No. 3,317.
1 300-volt Weston Direct Current Voltmeter, No. 6,020.
1 300-volt Weston Direct Current Voltmeter, No. 15,459.
1 300-volt Weston Direct Current Voltmeter, No. 15,455.
1 300-volt Weston Portable Direct Current Voltmeter, No. 15,456.
1 300-volt Weston Alternating and Direct Current Voltmeter, No. 1,044.
1 15-volt Weston Direct Current Voltmeter, No. 4,717.
1 500-ampere Weston Direct Current Ammeter, No. 2,428.
1 150-ampere Weston Direct Current Ammeter, No. 926.
1 50-ampere Weston Direct Current Ammeter, No. 2,381.
1 1,500-mil-ampere Weston Direct Current Mil-Ammeter, No. 2,433.
1 200-ampere T. & H. A. C. Ammeter, No. 29,421.
1 15-ampere T. & H. A. C. Ammeter, No. 21,507.
1 15-ampere Weston Direct Current Ammeter, No. 8,426.
1 Queen Testing Set, No. 389.

1 Standard Resistance Coil with Wheatstone Bridge.
1 Generator, 50,000 ohms.
1 Bichloride of Silver Battery, 150 cells.
4 Bichloride of Silver Batteries, each 60 cells.
2 Horses.
2 Express Wagons.
3 Business Wagons.
4 Sets of Harnesses.
5 Robes.
7 Blankets.
2 Cameras (complete).
Miscellaneous tools used in connection with overhead construction.
Draughting instruments.

DESCRIPTION OF PLATES.

Plate No. 1.— Is a reproduction of a photograph of a section of the Dorchester District known as Glover's Corner, or the junction of Dorchester avenue and Freeport street, showing the condition of the streets in a portion of the city where poles and overhead electric wires have not been removed.

Plate No. 2.— Is a reproduction of another photograph in the same section, at Fields Corner, or the junction of Dorchester avenue and Adams street, showing the same conditions as exist in the first picture and also showing a large apartment house nearly surrounded with these overhead electric wires.

Plate No. 3.— Is a reproduction of a photograph showing that portion of Hampden street north from Eustis street (1906 district), taken before the poles and overhead wires had been removed, showing a line of poles on each side of the street, heavily laden with overhead electric wires.

Plate No. 4.— Is a reproduction of a photograph taken from the same point as No. 3 after all poles and wires were removed.

Plate No. 5.— Is a reproduction of a photograph showing that portion of Dudley street west from Blue Hill avenue (1906 district), taken before the poles and overhead wires had been removed from the street.

Plate No. 6.— Is a reproduction of a photograph taken from the same point as No. 5 after all poles and overhea wires were removed.

Plate No. 7.— Is a reproduction of a photograph showin another portion of Dudley street (1906 district) west fro Cottage street, taken before the poles and overhead wir had been removed from the street.

Plate No. 8.— Is a reproduction of a photograph take from the same point as No. 7 after all poles and overhea wires were removed.

Plate No. 9.— Is a reproduction of a photograph showing that portion of Columbus avenue north from Roxbury street (1907 district), taken before the poles and overhead wires had been removed from the street.

Plate No. 10.— Is a reproduction of a photograph taken from the same point as No. 9 after all poles and overhead wires were removed.

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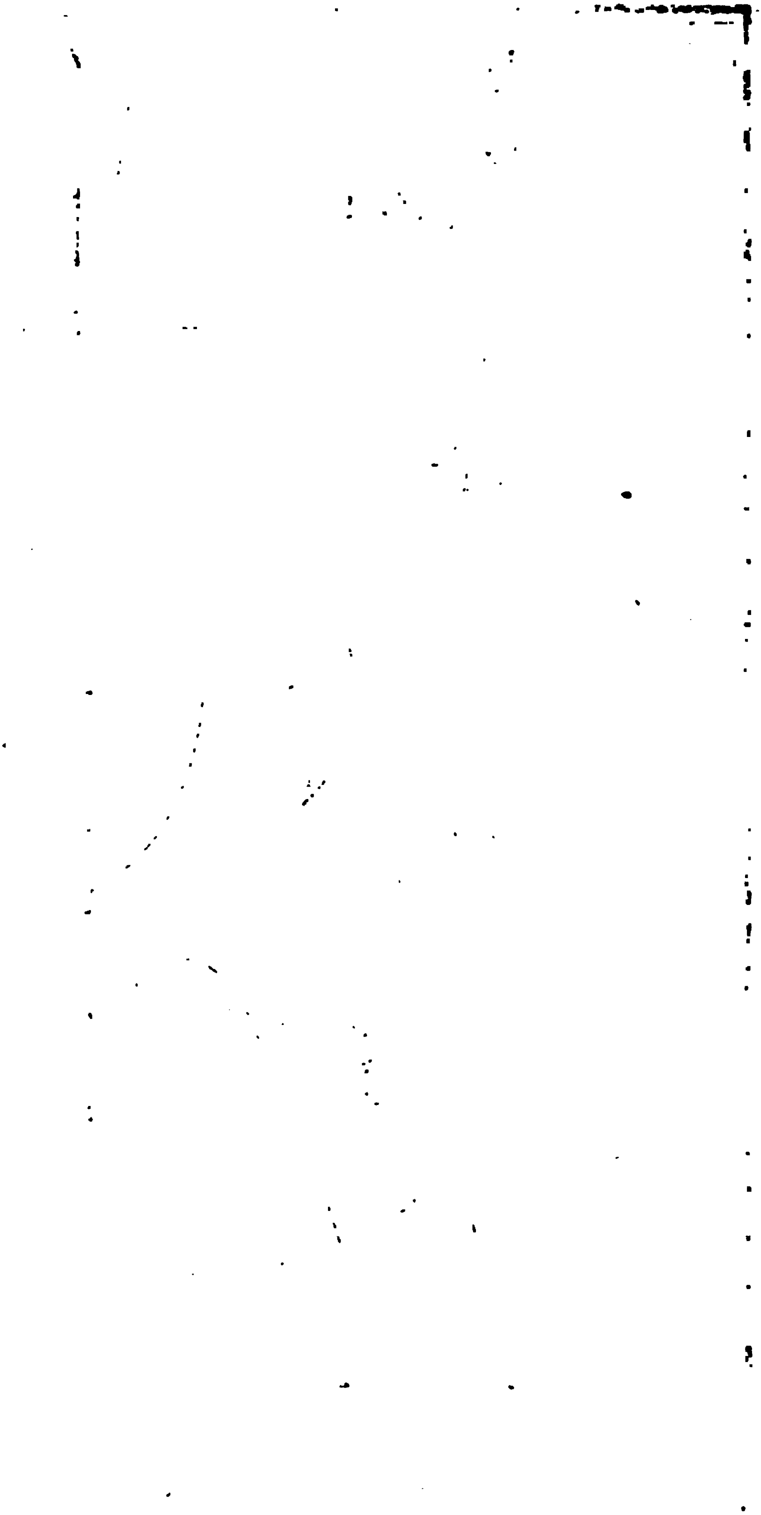

ANNUAL REPORT

OF THE

WIRE DEPARTMENT

YEAR 1909-10

CITY OF BOSTON
PRINTING DEPARTMENT
1910

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FOR THE

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1 Dec. 1910
DEPARTMENT OF ARCHITECTURE,
HARVARD UNIVERSITY.
Gift of
The Department

ANNUAL REPORT

OF THE

WIRE DEPARTMENT

FOR THE YEAR 1909-10.

Office of the Commissioner of Wires,
11 Wareham Street, Boston, February 7, 1910.

Hon. John F. Fitzgerald,
Mayor of the City of Boston:

Sir,— I herewith submit report in which is shown the appropriation and expenditures of the Wire Department and the work performed from February 1, 1909, to January 31, 1910, inclusive.

As provided for in chapter 347 of the Acts of 1908, the underground district for 1910 has been prescribed, same being Dorchester avenue, from Fort Point channel to Romsey street.

Dorchester avenue was selected as it is one of the city's main arteries of travel, and because its numerous poles and wires, installed many years ago, were in such a condition that their removal and the placing of the wires underground were necessary in the interests of safety.

The necessity for underground wiring was strongly demonstrated by the blizzard of December 25 and 26, 1909, as a result of which storm not only were a large number of our citizens deprived of electricity for light and power purposes, but, among other matters, were deprived of the protection from serious conflagrations, largely afforded by an efficient fire alarm system, as such a large amount of overhead fire-alarm wiring was affected by the storm that certain of the outlying sections of the city were for several days without fire alarm protection.

It is again a pleasure to report that no fire has occurred during the year caused by wiring approved by the department.

There have been three deaths during the year, one of which was due, and two indirectly due, to electricity.

I desire to again call attention to the fact that the valuable records of this department are not properly protected, and a fireproof vault should be provided.

Yours respectfully,

James E. Cole,
Commissioner of Wires.

EXTERIOR DIVISION.

The prescribed underground district for 1909 comprised that portion of Harrison avenue between Zeigler street and Warren street, a distance of four hundred and fifty-five (455) feet (balance of Harrison avenue having previously been prescribed); the entire length of Roxbury street between Washington street and Columbus avenue, a distance of two thousand nine hundred and fifty (2,950) feet; Guild row, between Roxbury street and Washington street, a distance of two hundred (200) feet; and that portion of Blue Hill avenue between Dudley street and a point one hundred (100) feet south of Cheney street, a distance of six thousand seven hundred and fifty-two (6,752) feet, — making a total distance of ten thousand three hundred and fifty-seven (10,357) feet, which distance lacks by two hundred and three (203) feet the two miles as authorized under chapter 249, Acts of 1898.

In that portion of Harrison avenue prescribed there were standing February 1, 1909, six poles, owned as follows: Four by the American Telephone and Telegraph Company and two by the New England Telephone and Telegraph Company.

In Roxbury street there were standing February 1, 1909, twenty-nine poles, owned as follows: Twenty-six by the New England Telephone and Telegraph Company and three by the Edison Electric Illuminating Company.

In Guild row there was one pole owned by the Edison Electric Illuminating Company.

In that portion of Blue Hill avenue prescribed there were standing February 1, 1909, seventy-one poles, owned as follows: Sixty-two by the New England Telephone and Telegraph Company and nine by the Edison Electric Illuminating Company, making a total of 107 poles in the prescribed district.

Attached to the poles and passing overhead on Harrison avenue, between Zeigler street and Warren street, there was approximately nineteen thousand (19,000) feet of wire, owned by the American Telephone and Telegraph Company, the New England Telephone and Telegraph Company and the Edison Electric Illuminating Company.

Attached to the poles and passing overhead on Roxbury street, between Washington street and Columbus avenue, there was approximately forty-seven thousand (47,000) feet of wire, owned by the New England Telephone and Telegraph Company, the Edison Electric Illuminating Company, the Western Union Telegraph Company, the Police Signal Service (B. P. D.), the Boston Automatic Fire Alarm Company and the Boston Elevated Railway Company.

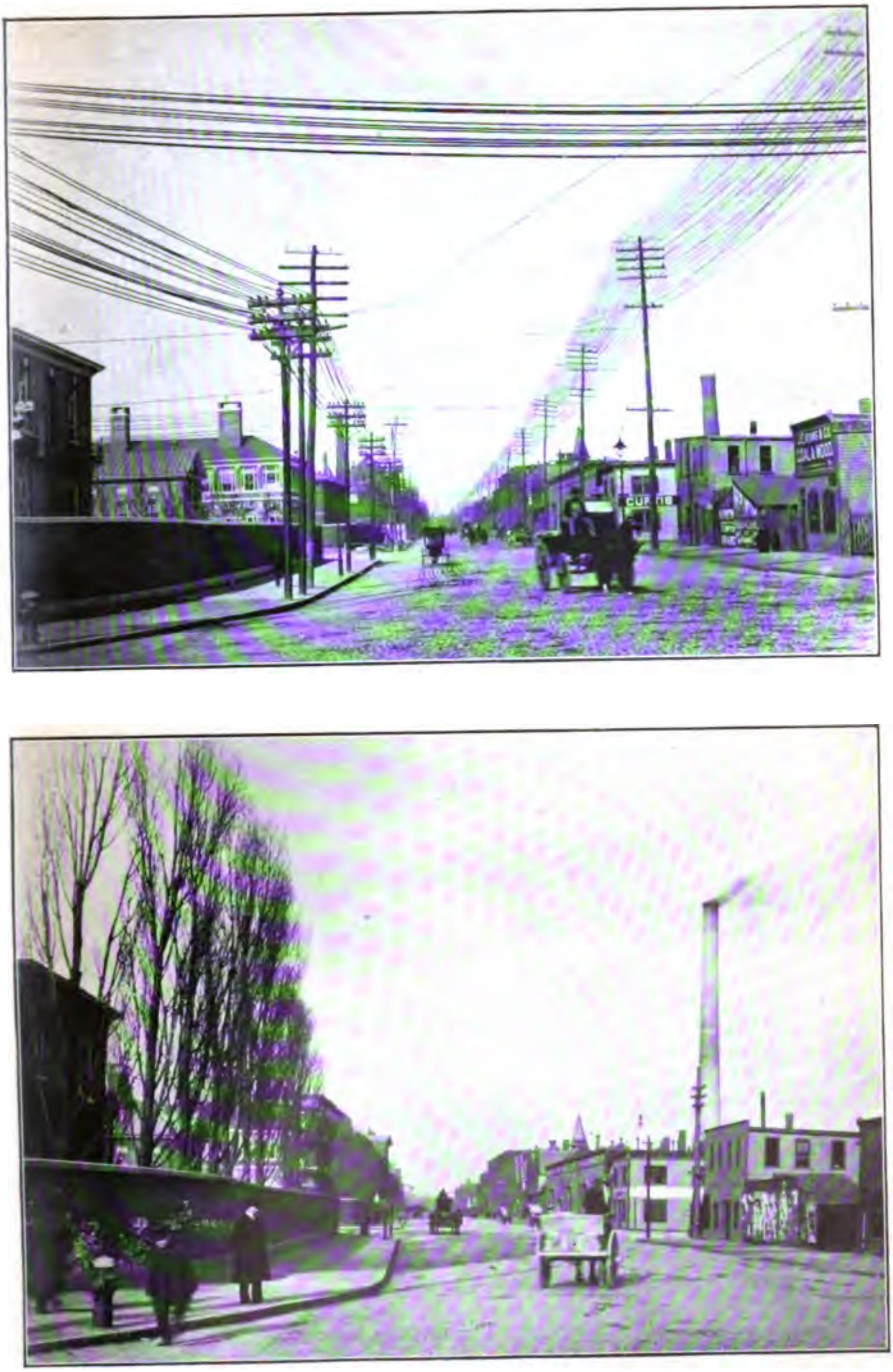
Attached to the poles and passing overhead on Guild row, between Roxbury street and Washington street, there was approximately eighteen hundred (1,800) feet of wire, owned by the Edison Electric Illuminating Company and the Boston Elevated Railway Company.

Attached to the poles and passing overhead on Blue Hill avenue, between Dudley street and point one hundred (100) feet south of Cheney street, there was approximately two hundred and thirty-two thousand (232,000) feet of wire, owned by the New England Telephone and Telegraph Company, the Edison Electric Illuminating Company, the Postal Telegraph-Cable Company, the Police Signal Service (B. P. D.), the Fire Alarm Branch (B. F. D.) and the Boston Elevated Railway Company.

The above figures give a total of two hundred ninety-nine thousand eight hundred (299,800) feet, or nearly fifty-seven (57) miles, of wire and cable over these streets ordered cleared of wires and poles during the year 1909, not including the trolley or span wires of the Boston Elevated Railway Company.

In order to provide distribution facilities from the underground conduits along the route of the 1909 district, it has been necessary to grant, as provided for in chapter 347, Acts of 1908, ten (10) terminal pole locations. Of these three (3) were on the line of Roxbury street and were granted on Putnam and Elmwood streets for the New England Telephone and Telegraph Company, and one (1) on Linden Park street for the Edison Electric Illuminating Company. On the Blue Hill avenue line there were six (6) locations granted,— to the New England Telephone and Telegraph Company, one each on Dewey, Dove, Moreland and Winthrop streets, and to the Edison Electric Illuminating Company, one on Quincy street and one on Blue Hill avenue, just beyond Cheney street. On the Harrison avenue line all distribution was provided for on private property or on existing poles, though one terminal pole location was granted the Edison Electric Illuminating Company this year on Thorndike street, near Harrison avenue, in the 1908 district.

Terminal pole locations were petitioned for on several other streets along the underground district, but after hearings given the abutters it was not deemed necessary or advisable to grant the locations requested.



Plates Nos. 1 and 2.— Albany street from Sheridan square, with and without poles and wires.

As a portion of the underground work of the Boston Elevated Railway Company for this year a line of conduit has been constructed between their Dorchester station and their new substation erected on Washington street, near Egleston square. This conduit starts at the end of the old underground conduit on Dorchester avenue near Linden street and runs through East and Adams streets, Eaton square, Quincy street, Blue Hill avenue, Georgia and Ruthven streets, Walnut and Westminster avenues, terminating at the new substation, corner of Washington and Bray streets, and is used for a high tension line of 13,200 volts alternating current.

Over forty-seven thousand (47,000) feet of duct has been laid by the Charles River Basin Commission on the Boston side of the Charles River Dam, between Boston and Cambridge. This work consists of four units of twelve vitrified clay ducts each, with separate manholes constructed of cement. The commission decided, after a meeting with the representatives of the various electric companies, to build these conduits themselves across the reservation, the same to be leased to the companies, rather than to permit the different companies to come in and open up the ground at different times in order to construct conduits such as their needs might justify. One conduit is set aside for the Boston Elevated Railway Company, one for the Edison Electric Illuminating Company, one for the New England Telephone and Telegraph Company and the fourth one to be leased by other companies which might require but one or two ducts each. As these lines all terminate at the line of Charles street it will only be necessary to open up the street from the dead ends to the various company manholes.

The new work inspections have greatly increased this year, the new telephone installations alone amounting to about 500 per month.

As in the past, engineers of this office have accompanied representatives of the various companies when it is desired to locate new poles on public streets, sketches of these proposed locations being kept in card catalogue form, for comparison with plans when filed for approval prior to the locations being granted by the Board of Aldermen.

A large number of poles have been set on private property, and on new and unaccepted streets, where only the permission of the abutter is required in order to locate the poles.

During the year approximately 2,500 of the "Gilbert" type of arc lamp used for street lighting have been replaced by the magnetite lamps and lamps of the new General Electric Flame Arc type. In connection with this change about

1,200 new lamp poles suitable for the new styles of lamps have replaced poles used for the support of Gilbert lamps.

The extensive changes begun in the street lighting system last year have been continued, and all proposed new locations for electric lamps examined before approvals were given. It might be added that these changes and the installation of tungsten street lamps in place of many of the gasolene lights will account in a large measure for the increase in the number of poles set (536) during the year. However, the large number of poles removed during the year makes the net gain over last year in poles standing but 125. The number of poles removed during the year, four hundred and eleven (411), is the largest number removed in any one year since the underground acts went into effect, one of the reasons for this being that an understanding was arrived at with the American Telephone and Telegraph Company to the effect that all their poles in the prescribed underground districts, which poles being used for long distance telephone wires were exempt by law, should be removed from the streets within a specified time, and during the year, in following out this understanding, their poles were removed from those portions of the following streets included in the prescribed underground districts,— Albany street, Harrison avenue, Dudley street and Washington street.

The Police Signal Service extended their underground service this year to the Brighton and Allston districts, using conduits of the New England Telephone and Telegraph Company, and connected to ten (10) signal boxes.

During the night of December 25–26, 1909, there occurred, in so far as wires and poles are concerned, the worst storm since the organization of the Wire Department, with the exception of the memorable storm of January 31–February 1, 1898.

Storm commenced about 6 p. m. on the 25th, the temperature being such that wires and poles began almost immediately to load up with snow and ice, and before daybreak of the 26th wires and many poles broke and fell, in some cases making streets impassable to travel.

As a result of this dangerous condition of affairs it became necessary to request very early on the morning of December 26 that current be shut off from all overhead street lighting and other circuits carrying currents at high potential, and that current be kept off such circuits until conditions would warrant a resumption of service on same. This action was necessary, not only in the case of such circuits as were themselves in bad condition, but also in the case of other circuits which were crossed and in contact with wires of other systems due to the latter wires breaking under the strain of the snow and ice and falling upon the wires carrying current at high potentials.

In the business section and other portions of the city where the wires were underground the public were but little inconvenienced in so far as their electric service was concerned, but in the suburbs in some cases it was several days before service could be restored.

The greatest damage to the overhead wires was to wires of the so-called signaling systems, one large corporation not having on the day following the storm a single circuit in operation. Certain outlying sections of the city were also practically deprived of fire-alarm service, and the telephone, telegraph and other systems were badly affected. It is a matter worthy of comment that, notwithstanding the severity of the storm and its effects on the wires and poles, there was but one fire (slight in extent) and but two very slight accidents to persons due to electrical troubles resulting from storm.

Over twenty interesting photographs were taken by this department showing effects to wires and poles caused by storm, plates from several of which are included in this report.

Accompanying this report will be found a plan showing poles and wires on and over that portion of the city which has been selected in accordance with the law as the underground district for 1910, namely, Dorchester avenue from Fort Point channel to Romsey street. Also photographs showing the conditions of Warren street and of Albany street before and after overhead wires and poles supporting same were removed.

Much of the open wiring which was broken down during storm is not to be replaced, but in nearly every case the New England Telephone and Telegraph Company are putting ring or cable construction in place of same.

During the past three years the Boston Elevated Railway Company has made the following changes of overhead wire from the poles to the elevated structure:

1907–08	46,795 feet, or 8,863 miles.
1908–09	29,365 feet, or 5,562 miles.
1909–10	11,970 feet, or 2,267 miles.

During the year the various companies doing underground work have opened one hundred twenty-three (123) different streets and avenues within the city limits for the purpose of constructing new conduits, or extending or enlarging their existing conduits. Forty-nine (49) of these were in the original underground district, or the congested portion of the city lying north of Dover and Berkeley streets, while the remaining seventy-four (74) were scattered throughout the rest of the city and suburbs.

The following table will show the overhead work for the year from February 1, 1909, to January 31, 1910, inclusive:

Permits granted by the Board of Aldermen to set poles	116
Number of poles included in the above orders	675
Permits granted by the Board of Aldermen to remove poles	57
Number of poles included in the above orders	100
Number of streets or avenues included in above orders	130
Number of new poles set in new locations	536
Number of poles removed	411
Number of poles reset, straightened, renewed, etc.	983
Number of new pole locations selected	995
Number of poles now standing	14,773
Amount of dead wire removed by Wire Department (in feet)	296,357
Defect notices sent out	2,599
Number of defects included in these notices	5,835
Number of defects corrected	7,052
Notices of new work and special inspections	14,947
Amount of wire removed by owners, in feet	1,943,119

The Board of Aldermen have also granted the following orders, which come under the jurisdiction of this department inasmuch as they pertain in one way or another to the overhead or underground electric wires.

Police signal post locations	10
Fire-alarm post and test box locations	11
Extensions of time on permits previously issued	9
Attachments of one company's wires to poles of another	8
To stretch overhead wires across public streets	4
To lay underground conduits in public streets	1
Extension of street railway tracks, etc.	11
Erection of derrick, stretching guy ropes, etc.	38
Transfer of poles from one company to another	6
Moving buildings, etc.	11
Total	109

The following companies and individuals have laid new conduits, extended present service or added to their underground cables during the past year:

For Electric Light and Power Purposes.

Boston Elevated Railway Company.
Charlestown Gas and Electric Company.
Charles River Basin Commission.
Edison Electric Illuminating Company.
Park Department, City of Boston.

For Telephone, Telegraph, Signaling and Other Purposes.

Boston Auxiliary Fire Alarm Company.
Boston District Messenger Company.
Boston Low Tension Wire Association.
Fire Alarm Branch, Boston Fire Department.
Mutual District Messenger Company.
Holmes Electric Protective Company.
New England Telephone and Telegraph Company.
Police Signal Service, Boston Police Department.
Postal Telegraph-Cable Company.
Schoolhouse Commission, City of Boston.
The Mixer Brothers Company.
Western Union Telegraph Company.

The electrical approvals of the department for permits for opening the streets for underground electrical work during the year numbered one thousand eight hundred and ninety (1,890); two thousand one hundred and six (2,106) reports have been made by the underground inspectors on this work, which called for over six thousand three hundred (6,300) inspections.

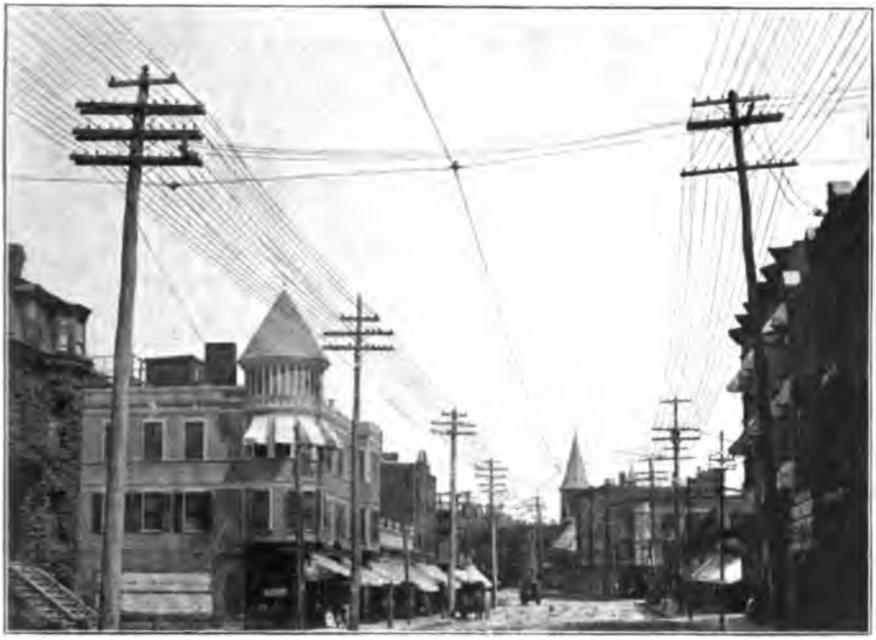
Character of Cables Used by the Various Companies.

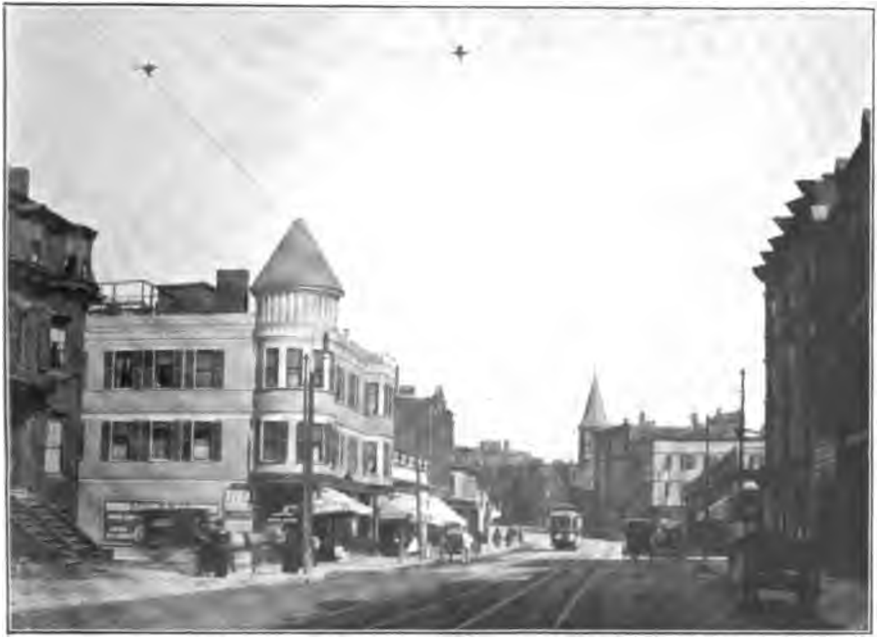
COMPANY.	Kind of Insulation.	Sizes.
Boston Auxiliary Fire Alarm Co.	Rubber	4 conductor.
Boston District Messenger Co.	Rubber	2 conductor.
Boston Elevated Railway Co.	Rubber	500,000 to 2,000,000 C. M.
Charlestown Gas and Electric Co.	Rubber	0000 and Nos. 2 and 4.
Edison Electric Illuminating Co.	Rubber and paper	No. 6 to 1,000,000 C. M.
Fire Alarm Branch (B. F. D.)	Rubber	6, 10 and 19 conductor.
Holmes Electric Protective Co.	Rubber	20 to 50 conductor.
Mutual District Messenger Co.	Rubber	10, 50 and 150 conductor.
New England Tel. and Tel. Co.	Paper	15 pair to 600 pair.
Park Department (C. of B.)	Rubber	No. 4.
Police Signal Service (B. P. D.)	Rubber	7 conductor.
The Mixer Brothers Co.	Paper	60 conductor.
Western Union Telegraph Co.	Paper	200 conductor.

Table Showing the Underground Electric Service of Boston by Yearly Installation, 1894-1909.

YEAR.	Feet of Conduit Installed.	Feet of Single Duct Installed.	Feet of Cable Installed.	Number of Manholes Installed.	Number of Services Installed.	Feet of Edison Three-wire Tube Installed.	Number of Distribution Boxes, E. E. I.
1894 *	213,160	1,762,401	1,342,731	1,322	3,286	273,473	381
1895	131,128	537,935	1,086,957	555	894	33,233	5
1896	146,759	711,081	1,088,012	585	1,108	37,165	11
1897	154,580	742,392	853,794	782	1,099	46,481	40
1898	112,254	835,180	1,202,914	556	947	13,463	6
1899	122,603	763,636	1,613,871	516	912	17,843	14
1900	145,163	816,968	784,488	582	1,035	34,136	24
1901	115,318	797,674	979,371	422	824	24,762	37
1902	87,396	529,383	784,032	327	1,000	28,496	42
1903	67,614	506,452	557,419	268	895	20,057	16
1904	46,539	365,162	486,474	176	642	13,080	12
1905	62,095	423,699	597,766	282	794	14,129	7
1906	84,465	627,428	534,675	366	976	14,959	9
1907	41,652	207,150	485,526	184	703	11,511	8
1908	41,374	258,815	417,228	220	747	7,045	8
1909	63,544	491,439	586,801	314	1,024	9,876	8
Totals	1,635,644	10,376,795	13,401,059	7,457	16,886	599,709	628

* Includes underground service prior to formation of Wire Department in 1894.





Plates Nos. 3 and 4.— Warren street, north from Savin street, with and without poles and wires.

Table Showing Underground Work for the Year 1909.

COMPANY.	Feet of Conduit.	Feet of Duct.	Feet of Cable.	Number of Manholes.	Number of Services.
Boston Auxiliary Fire Alarm Co	....	....	950	.....	.....
Boston District Messenger Co	....	....	400	.....	.....
Boston Elevated Railway Co	24,194	187,001	94,635	95	21
Boston Low Tension Wire Association	915	3,478	....	3	10
Charles River Basin Commission	3,739	47,128	....	21	12
Charlestown Gas and Electric Co	1,135	3,311	1,330	5	1
Edison Electric Illuminating Co	18,956	175,878	294,623	136	731
Fire Alarm Branch (B. F. D.)	365	1,417	24,166	1	12
Holmes Electric Protective Co	....	....	2,424	.....	.....
Mutual District Messenger Co	....	....	13,138	.....	.....
New England Tel. and Tel. Co	13,100	69,582	111,015	46	210
Park Department (C. of B.)	....	82	300	.....	1
Police Signal Service (B. P. D.)	....	1,627	37,000	1	21
Postal Telegraph Cable Co	....	80	....	.....	3
Schoolhouse Commission	425	425	....	.....	.....
The Mixer Brothers Co	640	1,250	170	4	.....
Western Union Telegraph Co	75	180	6,650	2	2
Totals	63,544	491,439	586,801	314	1,024

NOTE.— Main and feeder tube and the solid system distribution boxes of the Edison Electric Illuminating Company are not included in the above figures. There were 9,876 feet of tube laid during the year; of this 1,232 feet is reckoned as conduit; eight new distribution boxes were installed during the year.

Table Showing Overhead Electrical Condition of Boston and some of the Work Accomplished from 1894 to 1909, Inclusive.

YEAR.	Number of Poles in District.	Amount of Overhead Wire in Feet in the District, Approximate.	Number of Poles Set in City.	Number of Poles Standing in City.	Number of Defect Notices Sent Out.	Number of Defects in Notices.	Number of Defects Reported Corrected.	Number of Poles Removed.	Number of Fixtures Removed.	Amount of Wire Removed by Owners.	Amount of Wire Removed by Wire Department.	Total Amount of Wire Removed
1894...	333	5,174,550	.....	12,398	......	4,674	......	* 73	217	1,814,650	881,150	2.6
1895...	94	9,916,860	.....	12,979	......	15,889	......	* 94	643	5,332,600	2,740,425	8,073
1896...	182	13,719,670	.....	14,267	1,760	11,445	......	* 138	325	5,500,481	1,995,350	7,545
1897...	134	2,721,550	.....	15,000	1,940	7,596	......	.....	774	7,993,712	1,663,650	9.637
1898...	......	....	424	15,355	3,693	15,963	3,029	* 52	661	2,034,420	836,100	2.871
1899...	No	district this	year.	......	3,279	9,800	1,924	* 40	825	....	348,275	348
1900...	129	500,000	1,116	......	2,147	5,041	4,270	215	535	20,160	272,150	292
1901...	54	157,200	1,148	14,019	4,409	11,215	9,576	332	375	1,168,293	276,690	1,444
1902...	183	350,988	†738	14,607	3,419	8,256	9,410	150	162	3,976,124	263,325	4,239
1903...	136	196,895	639	14,999	2,576	6,688	7,704	247	138	1,720,468	264,370	1.984
1904...	191	1,003,200	211	14,954	1,615	5,431	4,579	256	141	2,931,237	251,790	3,183
1905...	175	273,000	158	14,968	1,456	3,986	3,355	144	60	1,818,859	268,915	2,087
1906...	225	746,000	130	15,000	1,554	3,513	3,623	98	32	3,773,420	381,750	4.155
1907...	123	297,000	38	14,793	1,693	3,887	4,052	245	7	4,442,947	281,860	4.724
1908...	154	248,000	121	14,648	2,510	5,362	5,081	266	.....	3,523,457	308,452	3.831
1909...	107	299,800	536	14,773	2,599	5,835	7,052	411	.....	1,943,119	296,357	2,239
Totals..	2,220	35,604,713	5,259	......	34,640	124,581	63,655	2,761	4,895	47,993,947	11,330,609	59,375

NOTE.— No official survey was made of the pole lines throughout the entire city until 1900–01; this acco for the somewhat incomplete and possible inaccuracy of these records for the years previous to 1900.

* Inside the prescribed underground district for this year only; number in rest of city not recorded.

† A different figure appears in the annual report for this year (998 poles being reported set and 270 remov this was due to the record of permits issued, rather than the returns of work actually done, having been used.

Table Showing the Amount and Distribution of Boston's Electrical Power January 31, 1907.

	Total Rated Horse Power of Boilers.	Total Rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.
Boston Elevated Railway Co.	30,914	59,170	60,728	569	4,911	191,307
Edison Electric Illuminating Co.	23,659	47,575	686,358	9,581	8,439	30,839
Charlestown Gas and Electric Light Co	....	....	....	....	80	392
Boston Consolidated Gas Co	1,250	3,100	80,000	600	101	469
Block Plant Electric Light Co.	273	417	5,250	....	3	16
Sudbury Building	202	230	727	2	25	114
Steam and Power Co.	267	295	4,000	400	60	294
Hecht Building Plant.	300	200	2,400	240	32	234
Isolated plants*	64,921	42,792	221,415	3,771	1,297	10,651
Totals.	121,786	153,779	1,060,878	15,163	14,948	234,316

* The capacity of generators for isolated plants in kilowatts, 21,087.

Table Showing the Amount and Distribution of Boston's Electrical Power

January 31, 1908.

	Total Rated Horse Power of Boilers.	Total Rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of Stations.
oston Elevated Railway Co.	39,138	64,950	66,149	625	5,401	226,607	10
dison Electric Illuminating Co.	25,456	71,200	749,087	9,169	9,200	35,953	13
harlestown Gas and Electric Light Co.	475	140	....	....	80	503	....
oston Consolidated Gas Co.	1,500	3,100	96,170	604	121	486	1
lock Plant Electric Light Co.	273	417	5,250	....	3	16	1
udbury Building	202	230	656	....	30	140	1
team and Power Co.	267	295	4,000	400	60	294	2
lecht Building Plant	300	200	2,400	240	32	234	1
solated plants*	64,859	44,471	223,000	3,869	1,472	11,428	301
Totals	132,470	185,003	1,146,712	14,907	16,399	275,661	330

* The capacity of generators for isolated plants in kilowatts, 22,251.

January 31, 1909.

Boston Elevated Railway Co.	41,244	74,950	73,703	685	6,439	271,204	10
Edison Electric Illuminating Co.	32,642	87,200	824,478	8,813	9,859	38,626	13
Charlestown Gas and Electric Light Co.	475	140	....	....	100	575	....
Boston Consolidated Gas Co.	1,625	3,200	101,227	604	132	570	1
Block Plant Electric Light Co.	273	417	5,250	....	3	16	1
Sudbury Building	202	230	688	....	30	140	1
Steam and Power Co.	267	295	4,000	400	68	301	2
Hecht Building Plant	300	200	2,400	240	32	234	1
Isolated plants*	69,734	49,768	237,909	3,866	1,688	14,986	319
Totals	146,762	236,400	1,249,655	14,608	18,351	326,652	348

* The capacity of generators for isolated plants in kilowatts, 25,702.

January 31, 1910.

Boston Elevated Railway Co.	44,356	73,450	83,738	866	6,551	271,449	10
Edison Electric Illuminating Co.	32,642	99,600	921,381	8,645	11,118	43,683	13
Charlestown Gas and Electric Co.	....	....	10,485	311	202	1,223	....
Block Plant Electric Co.	273	417	5,250	....	3	16	1
Sudbury Building	202	230	650	....	29	132	1
Steam and Power Co.	267	295	4,000	400	63	313	2
Hecht Building Plant	300	200	2,400	240	32	234	1
Hanover Street Trust	200	385	2,000	8	26	71	1
Isolated plants*	69,606	48,927	234,790	3,521	1,634	14,642	322
Totals	147,846	223,504	1,264,694	13,991	19,658	331,763	351

* The capacity of generators for isolated plants in kilowatts, 25,370.

Table Showing the Increase of Electrical Output from 1894 to 1909, Inclusive.

	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.
Incandescent lights	219,653	285,155	324,271	357,838	424,443	499,906	660,882	739,779
Arc lights	6,598	7,915	8,172	9,584	13,094	12,796	12,830	14,055
Motors	4,036	4,682	?	6,447	7,070	7,779	9,037	9,480
Horse power of motors	?	?	?	48,641	84,002	90,890	102,562	145,565

	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.
Incandescent lights	782,711	792,059	874,539	971,711	1,060,878	1,146,712	1,249,655	1,264,694
Arc lights	13,365	14,001	14,441	15,271	15,163	14,907	14,608	13,991
Motors	11,632	12,344	13,250	13,724	14,948	16,399	18,351	19,668
Horse power of motors	164,625	168,500	179,910	192,493	234,316	275,661	326,652	331.763

INTERIOR DIVISION.

To meet the ever increasing demand for electrical energy, additions to and changes in the generating and distributing systems of the Edison Electric Illuminating Company and the Boston Elevated Railway Company during the past year have been necessary.

The principal changes in the system of the Edison Electric Illuminating Company are as follows:

At their fourth station, L street, South Boston, two 5,000 kilowatt step up transformers were installed and put into service, thereby increasing the potential of their transmission circuits from 6,900 volts to 13,800 volts.

At their third station, Atlantic avenue, the battery capacity of station has been increased 650 kilowatts at the one-hour rate.

At their first station, Head place, the battery capacity of station has been increased 650 kilowatts at the one-hour rate, and one 1,000 kilowatt motor generator set has been installed.

At the tenth station, Bussey place, one additional 500 kilowatt motor generator set has been installed.

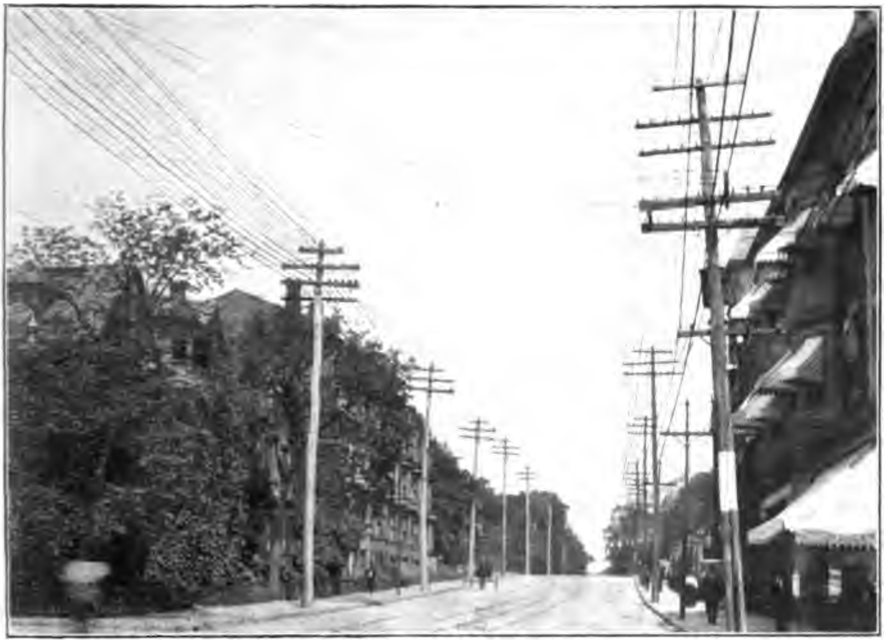
A new station (No. 30) has been constructed at the corner of Salem and Prince streets for a capacity of approximately 5,000 kilowatts, of which 1,000 kilowatts in motor generators have been installed during the past year. A battery having a capacity of 778 kilowatts at the one-hour rate has also been installed. This station takes the place of the old North street station, at the corner of North and Ferry streets, which had a capacity of 450 kilowatts, and which has been discontinued.

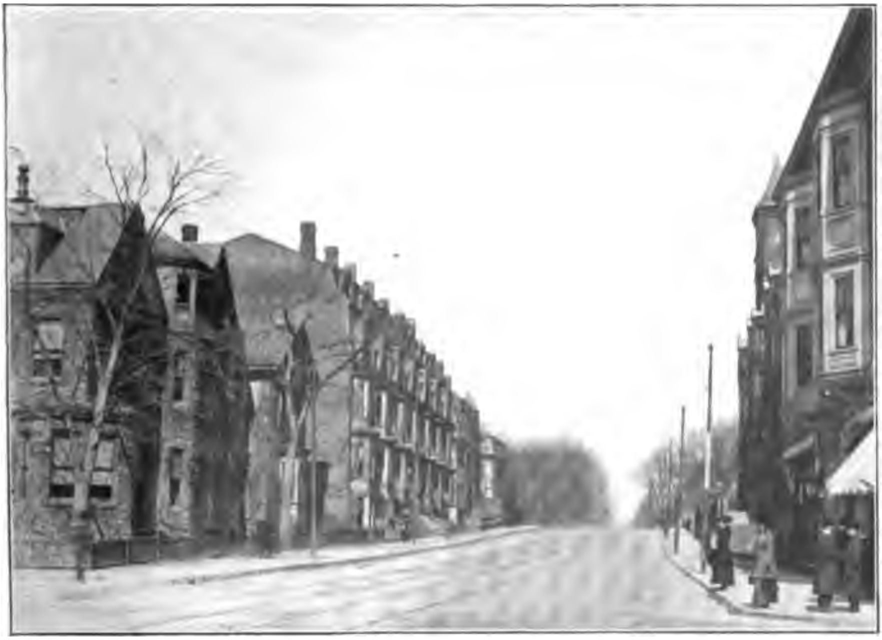
The total battery capacity of the Edison system available for emergency service is now 9,095 kilowatts at the one-hour rate.

In the Brighton section of the city a new station is in process of erection, at the corner of Commonwealth avenue and Linden street. This station is designed to supply service in Brighton, Allston and Brookline, and is to replace the present Allston generating station.

The 500 volt power service used for Brighton customers is to be discontinued, and motors are to be changed to alternating current types.

The 2,300 volt three-wire three-phase circuits feeding from the Zeigler street and East Boston stations (Stations





Plates Nos. 5 and 6.—Warren street, north from Copeland street, with and without poles and wires.

9 and 8) have been converted into four-wire three-phase circuits for the purpose of increased distributing capacity, without increasing the number of circuits. This results in a pressure of 2,300 volts between the neutral and phase wires, and approximately 3,980 volts between the phase wires themselves.

The principal change in the generating plant of the Boston Elevated Railway Company has been the building of a substation at the corner of Washington and Bray streets, near the Egleston square station of the elevated system, and the installation of necessary equipment to feed and operate same.

Station, which is 93 feet by 53 feet, has a sloping roof, with a maximum height of 44 feet above street level, and contains at present two Westinghouse rotary converters of 1,000 kilowatt rating, each receiving on their alternating current side energy at about 400 volts. For each rotary there is installed a bank of air blast Westinghouse transformers, with a 13,200/400 voltage ratio. Provision is made for an additional equipment when necessary of four 2,000 kilowatt rotary converters, with transforming and other auxiliary apparatus. Current for the operation of this station is generated at a potential of 13,200 at the Freeport street station, Dorchester, and transmitted underground by means of a three-wire lead-covered cable, No. 1 B. & S. gage copper, paper insulated, to the substation.

This steam driven turbo-generator at the Freeport station is the only alternating current generating apparatus in the Boston Elevated Railway Company's system, and is a noteworthy departure from previous practice on their part.

This generator was installed originally and was used as a direct current piece of apparatus, wound for 600 volts and delivering current directly to the trolley and feeder system of the company.

It was rebuilt for alternating current service as a 25-cycle 13,200 volt generator for use in connection with the Egleston square substation. A circumstance in connection with this station, worthy of special mention, is the fact that while ground was not broken for the construction of station until September, 1909, on December 30 the machinery in station was placed in operation.

The provisions of chapter 450 of the Acts of 1904, relating to the inspection of theaters and halls, have been complied with and the department has received the co-operation of theater managements, where changes have been requested in the interests of safety.

During the year fires for which three or more alarms were given were responded to, and such action was taken relative to wiring and electrical conditions at fires as circumstances warranted.

It has been the practice to cut the current off of wiring in buildings where serious fires occurred, current not being again turned on same until an inspection and test of electrical installation had been made and permit given by this department to do so.

There were thirty-two fires inside of buildings which were found to have been due wholly or in part to electrical causes. Of this number seventeen were of minor character and entailed no insurance loss.

The most serious fire was one that was not due to either defective electric wiring or defective apparatus, but was the result of the improper and defective installation of electric plate warmers, which had been installed about two years previous to the time of fire without notification to or knowledge of this department. These plate warmers were of the enamel type, were provided with ¾-inch legs, and were set, with nothing but thin asbestos paper intervening, upon wood floor in pantry, and were covered with a tight, close metal inclosure or cabinet, which in turn was incased in a wooden inclosure. The heat of these plate warmers had unquestionably ever since their installation been affecting, while in use, the wood flooring upon which they were mounted, until, finally, the accidental leaving of current on warmers, as described further on, caused the ignition of the flooring, which had been charring beneath heaters, and fire was communicated to other portions of building, causing a very heavy loss.

As house was about to be opened for the return of family who had been at their summer residence, mechanics went to the house for the purpose of making slight repairs and making preparations for the opening of house. Electric current had been shut off from the premises when house was vacated for the summer, and when the mechanics attempted to get light by turning on the electric switches they were unsuccessful. Among the switches operated was switch controlling circuit for plate warmers, previously mentioned. This switch was not turned off again but was left on. Later in the day the public service corporation supplying electric current sent their men who made service alive, as per directions, the plate warmer circuit thereby being made alive, which fact was not noticed, and, later, house was closed for the night. Plate warmers not being properly installed, and there being practically no ventilation to cabinet inclosing same, heat became such that during the night flooring beneath warmers was ignited and fire spread to other portions of the house, doing damage for which an insurance loss of $180,197.06 was paid, and this did not cover the damage done, as there were many articles destroyed that could not be replaced.

It should be remembered that this fire was not an electrical fire in its proper sense. Even after the fire the electric warmers were in good working condition. The wiring was iron conduit construction, and satisfactory. Had the warmers been heated by any other form of energy than electricity the results would have been the same.

The cause of the fire, more properly speaking, was the lack of knowledge or the inexcusable carelessness on the part of the person who installed heaters, also the failure on his part to notify of work in question.

While the law requiring the notification of electrical installations to be sent the Commissioner of Wires was in force at the time heaters were installed, there was, unfortunately, no penalty provided for violations of same. At present there is a penalty provided by chapter 339 of the Acts of 1908 of from $10 to $50 fine in each case of failure to notify. Even were this applicable to the case in question the penalty would be inadequate. There should be some law by which such parties should be prevented from doing further work.

With the fire just referred to left out of consideration the total insurance losses for the year by fires shown by our reports to be due to electrical causes were but $11,938.48, or a little less than 62 per cent of the insurance loss of the year previous by fires in this city due to electrical causes.

Of the balance of the fires (fourteen in number) which entailed an insurance loss, but four caused losses of over $200 each. These were as follows: One causing a loss of $8,297.37 was due to the defective operation of an electric motor, which had not received proper attention; one causing an insurance loss of $1,750 was insignificant in extent, the entire loss being practically due to smoke damage; one causing an insurance loss of $498.50 was damage to buildings as a result of wires falling upon roofs during a severe blizzard, pole carrying wires having broken off at the butt, the other fire causing an insurance loss of $396.40 was due to a burn-out among wires at service entrance.

During the year there were twenty-eight accidents to persons, three of which resulted fatally. Of the accidents reported, twenty-two were to experienced men who were working on wires or electrical apparatus at the times accidents occurred.

Of the fatal accidents, one was to an employee at the Charlestown Navy Yard who, while making repairs in connection with electric crane apparatus, received an electric shock and fell, his skull being fractured thereby and death resulting; one was to a citizen who, during a severe wind and rain storm, picked up a live wire which had fallen to street, and one was to an employee of the Edison Electric Illuminating Company who, while at work on a street arc lamp pole, received an electric shock, causing him to fall to ground, injuries sustained as a result of the fall causing his death about two weeks later.

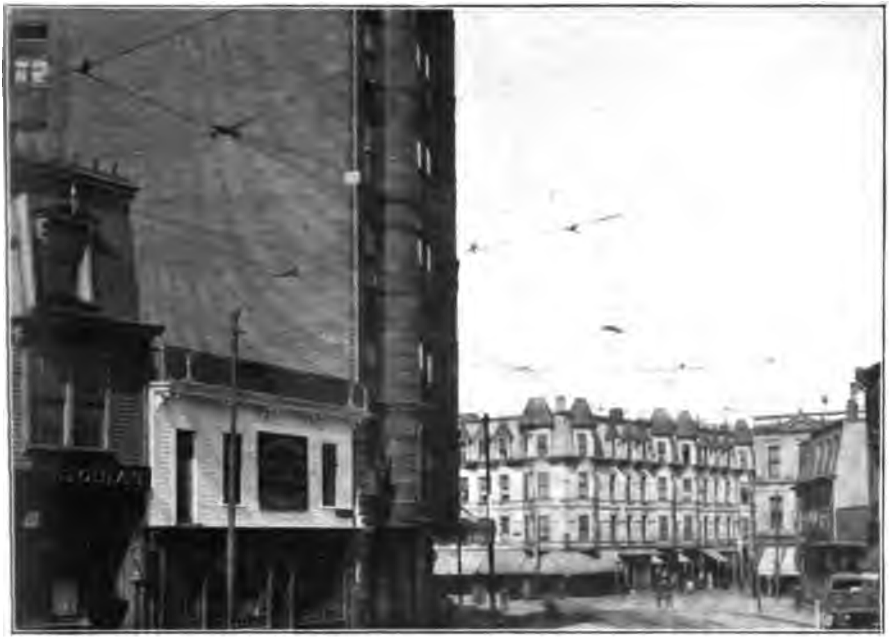
Of the five accidents without fatal termination to persons inexperienced in electrical matters, one was the case of a carpenter sawing off the end of a sleeper on the elevated railway structure being burned as the result of his saw making simultaneous connection with third or live rail and grounded structure; one was the case of a fireman who, while performing his duty at a fire, received a severe electrical shock from current conducted over a wet hose which was in contact with an electric light wire; two were the cases of mother and child who received shocks due to current entering building over piping system, overhead wires having fallen upon roof of building during severe blizzard, while the fifth case was that of a workman who received slight burns to two fingers as a result of a short circuit in a pendant lamp cord, which occurred while he had lamp cord in his hand.

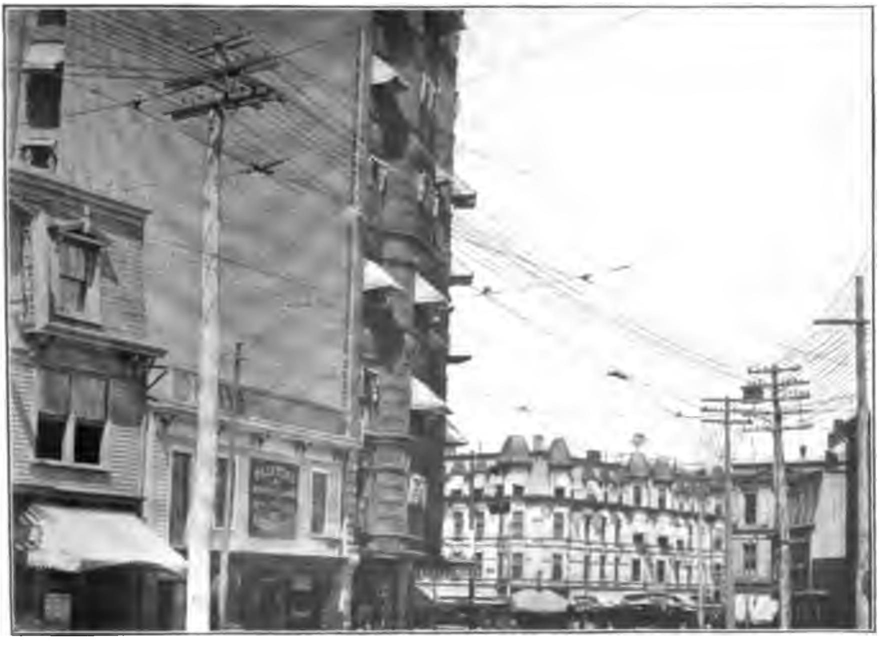
During the year there were 2,164 more notifications of new work than for the year previous, showing a gain of 19½ per cent in number received. The number of inspections made showed an increase of 10½ per cent, while arcs, motors, etc., the installation and wiring of which was inspected, all show increases over number inspected last year.

The following is a complete summary of the work of the Interior Division for the year ending January 31, 1910:

Notices of new work received	13,208
Buildings in which wiring was completely examined,	1,735
Incandescent lights examined	1,154,150
Arc lights examined	6,087
Motors examined	6,568
Total horse power of motors examined . . .	21,477¼
Services examined	847
Inspections made	27,235
Defects reported	1,526
Defects corrected	1,048

Other defects are in process of correction.





Plates Nos. 7 and 8.—Warren street, junction of Harrison avenue with and without poles and wires.

During the year there have been ninety-four fires or accidents to property, the origin of which was traced to electricity.

Fires in interior of buildings	32
Fires on outside of buildings	2
Fires at bridges	4
Fires on poles	9
Explosion in manholes	4
Miscellaneous, exterior	36
Miscellaneous, interior	7
	94

able Showing the Number and Classification of Fires, etc., Due to Electrical Causes, from 1894 to 1909, Inclusive.

	1894.*	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.
ires on outside of buildings	4	7	14	11	22	6	5	8	3	2	5	4	1	....	2	2
ires in the interior of buildings	27	27	22	29	28	31	29	22	18	32	23	20	14	18	23	32
ires on poles	5	4	3	3	6	1	7	10	3	2	5	3	2	5	5	9
ridge fires	....	6	2	1	4	2	3	1	1	3	3	4	4	7	1	4
eaths	....	....	3	3	....	3	4	6	2	....	3	2	2	7	1	3
juries	11	17	13	16	11	16	4	21	13	9	15	17	12	13	14	25
anhole explosions	1	3	2	5	....	5	1	5	5	1	3	3	2	4	....	4
iscellaneous	12	27	26	45	22	7	20	33	12	12	40	25	36	38	35	43

* Record shown for 1894 is for five months only.

The following is a record of isolated plants in operation in this city:

Number of plants,	322.		
" boilers,	658,	total horse power,	69,606
" engines,	586,	" "	48,927
" generators,	577,	" k. w. capacity,	25,370¾
" motors,	1,634,	" horse power,	14,642
" incandescents,	234,790.		
" arcs,	3,521.		

The record of new plants installed and inspected is as follows:

Number of plants,	8.		
" boilers,	3,	total horse power,	647
" engines,	7,	" "	171
" generators,	9,	" k. w. capacity,	92¼
" motors,	5,	" horse power,	55
" incandescents,	764.		
" arcs,	1.		

During the year ending January 31, 1910, there were fourteen old plants inspected, the equipment of which was as follows:

Number of plants,	14.		
" boilers,	14,	total horse power,	1,740
" engines,	8,	" "	722
" generators,	8,	" k. w. capacity,	315
" motors,	20,	" horse power,	103⅔
" incandescents,	1,552.		
" arcs,	15.		

The record of plants, the operation of which was discontinued during the year, is as follows:

Number of plants,	5.		
" boilers,	12,	total horse power,	775
" engines,	8,	" "	1,012
" generators,	8,	" k. w. capacity,	422½
" motors,	59,	" horse power,	399
" incandescents,	3,883.		
" arcs,	346.		

Table Showing Inspection of Interior Wiring of Buildings, etc., from 1894 to 1901, Inclusive.

	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.
Notices of new work received	1,428	3,984	4,383	5,799	5,355	5,749	5,859	9,10
Number of buildings, wiring completely examined	173	359	395	473	451	567	570	69
Incandescent lights examined	69,035	123,136	118,679	128,857	125,458	151,046	316,074	422,1
Arc lights examined	1,083	2,934	2,835	2,396	2,396	2,495	5,697	12,
Motors examined	272	776	908	1,121	1,027	1,225	1,922	3,27
Total horse power of motors examined	840	83,566	3,247	3,739	5,681	6,967	11,150	16,44
Defects reported	610	4,890	9,505	2,318	1,661	2,369	2,274	2,34
Defects corrected	406	3,608	8,737	1,452	926	1,846	1,622	1,92
Services examined	....	....	....	1,988	1,283	1,115	1,176	1,65
Inspections made	....	....	....	....	9,472	12,476	12,609	23,111
Isolated plants in this city	....	....	....	....	....	203	271	281
Isolated plants inspected	....	....	....	....	....	....	....	34

Table Showing Inspection of Interior Wiring of Buildings, etc., from 1902 to 1909, Inclusive.

	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.
Notices of new work received	10,272	8,590	7,983	9,317	10,412	9,465	11,044	13,20
Number of buildings, wiring completely examined	496	487	524	590	1,173	1,158	1,475	1,73
Incandescent lights examined	394,234	330,050	611,778	686,231	716,137	966,615	1,123,626	1,154,150
Arc lights examined	10,882	2,716	5,738	6,028	4,469	5,909	6,059	6,087
Motors examined	3,006	2,465	2,966	3,006	4,619	5,477	5,997	6,568
Total horse power of motors examined	12,531	11,151	11,790	11,667	21,725	23,347	20,197	21,477
Defects reported	1,810	1,274	1,073	1,289	1,425	1,945	1,776	1,526
Defects corrected	1,165	938	673	905	966	1,190	1,231	1,048
Services examined	1,174	819	571	595	780	773	675	847
Inspections made	23,962	19,635	19,224	23,588	27,286	28,265	24,624	27,235
Isolated plants in this city	283	274	274	276	298	301	319	322
Isolated plants inspected	6	20	14	15	90	79	41	22

FIRES AND MISCELLANEOUS TROUBLES DUE TO ELECTRICITY, FEBRUARY 1, 1909, TO JANUARY 31, 1910.

February 1, 6.51 p. m., 31 Milk street; slight fire on side wall in basement, at bottom of elevator well, due to breakdown of insulation of wires which crossed side wall of elevator well in flexible tubing back of metal covering of well; breakdown of insulation was the result of same being affected by moisture; Chemical 1 called on still alarm. Insurance loss, $100.

February 7, about 8 p. m., near centre of Blackstone square; slight tree fire caused by arcing and flashing at point of contact between series arc light wire and tree.

February 8, 8.45 a. m., Box 74, 1440 Washington street; fire on upper floor of building, due to sparks from commutator of a 5 horse power motor used to operate freight elevator igniting oil and other inflammable material about motor. Fire was confined to motor equipment, and was extinguished by occupants before the arrival of fire department. Insurance loss, $109.

February 10, in the neighborhood of 6 p. m., Dover Street Bridge; metal work of bridge electrically charged at intervals as a result of series arc light wire during a high wind and gale being swung against iron trolley wire supporting pole, which, in turn, was in contact with metal work of bridge.

February 10, 6.03 p. m., Blue Hill avenue at Intervale street; tree fire caused by defective tree bracket permitting series arc wire to swing and come in contact with tree; severe storm in progress at time.

February 10, 7.10 p. m., Walnut avenue, corner Walnut park; telephone wire broke and fell upon 2,300 volt A. C. circuit, with consequent arcing and flashing; severe storm in progress at the time.

February 10, about 10 p. m., corner Parker and Ruggles streets; wire of series arc lighting circuit became crossed with a secondary circuit, with consequent arcing and flashing.

February 12, 11.47 p. m., alarm from Automatic Box 84; a burn-out in underground electric mains occurred in Summer street, followed by an explosion and slight fire in basement of building 22–24 Summer street, in front of which building burn-out occurred.

March 4, opposite 136 Eustis street; a tree charged with electricity, several passersby being shocked as a result of coming in contact with tree; trouble was due to wire of a 2,300 volt A. C. circuit coming in contact with limb of tree.

March 5, 1.30 a. m., 29 North Market street; slight fire on first floor as a result of insulation on two main wires on side wall at a point just above heads of floor tubes becoming so affected by moisture that an electrolytic action took place between wires of opposite polarity, ultimately resulting in arcing between wires and insulation of wires being ignited.

March 6, 8.45 a. m., Box 52, 282 Devonshire street; for lack of proper attention brushes on 1 horse power motor became so badly worn that arcing and sparking occurred at commutator; oil, dirt and sweepings which had been allowed to collect were ignited by sparks; no damage except to motor.

March 9, 9.27 a. m., Box 62, Motor Mart Building, Park square; fire caused by breakdown in the insulation of No. 0000 B. & S. gage main wires at a point where conduit pipe entered box containing branch main cut-out. Arc maintained between wires and box, box badly melted and adjacent woodwork set on fire. Insurance loss, $82.40.

March 13, 3.55 p. m., pole on Blue Hill avenue, second pole north of Seaver street; fire occurred in test box of the Postal Telegraph Cable Company attached to said pole, same being due to cross between wires of the Postal Telegraph Cable Company and light or power wires; contact said to have occurred at Needham, Mass. Inside of test box and the contents were badly burned; Hook and Ladder 23 called on still alarm.

March 15, 68 Devonshire street; Fire Department was called on still alarm at 7.27 p. m.; no fire found but smoke was coming from motor used to operate passenger elevator; this was the result of carelessness, current being left on motor when the use of elevator was stopped for the night; series coil of field magnets was roasted by excessive current passing through same; smell and smoke from the insulation of same attracting attention and causing the call of Fire Department.

March 18, 12.21 p. m., 188 Beacon street; Engine 33 called on still alarm; no fire found, but the coils of a telephone set belonging to the New England Telephone and Telegraph Company and located on third floor of dwelling were found to have burned out, causing considerable smoke and smell, but doing no damage other than to apparatus; trouble was due to a cross between telephone wire and the incandescent lighting wires of building.

March 26, 4.20 a. m., Chelsea Bridge; Ladder 22 called on still alarm for slight fire on the underside of bridge at northerly side of south draw; same was due to grounding of current from an arc light wire to street lamp as a result of said wire

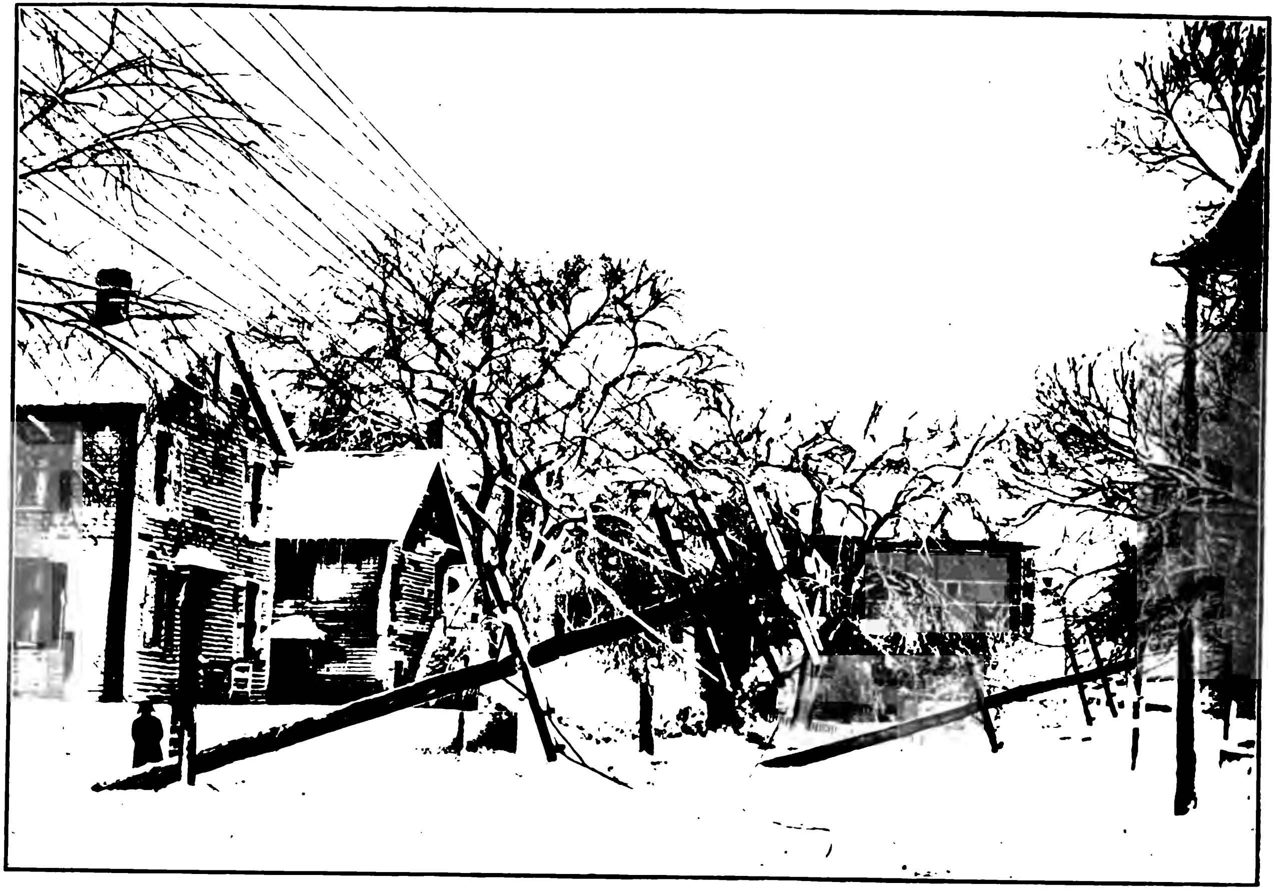


Plate No 9 — Freeport street, near Pleasant street, Dorchester, showing damage to poles and wires by storm of December 25 and 26, 1909.

being crossed and in contact with lead sheath of telephone cable near base of lamp pole; no damage except to lighting wire and telephone cable.

March 31, about 8.30 p. m., Dewey square; burn-out on underground electric mains, followed by an explosion in overflow catch-basin of the Sewer Department, gases passing into catch-basin and explosion following; no damage except to electric mains.

April 7, 9.01 p. m., Box 232; given for a slight tree fire opposite 138 Eustis street; same was due to grounding of current from a 2,300 volt wire in contact with tree.

April 12, 11.40 a. m., 178A Tremont street; members of Engine 26 called on still alarm on account of burn-out of electric motor in basement; defective rheostat permitted overloading of motor when attempt to start same was made; no damage except to motor and a few feet of wiring.

April 15, 10.50 a. m., corner of Chauncy and Avon streets; trolley pole electrically charged; same being due to breakdown of span wire insulators during severe rainstorm.

April 15, 10.50 a. m., corner Lincoln and Kneeland streets; trolley pole electrically charged; same being due to breakdown of span wire insulators during severe rainstorm.

April 15, about 7 a. m., Warren Bridge, near draw, Charlestown; Fire Department called on still alarm on account of slight fire at base of iron trolley pole as a result of current leakage due to breakdown in span wire insulators, and pole becoming electrically charged; damage insignificant; raining at time of trouble.

April 20, 4.47 p. m., Box 67, 744–756 Washington street; slight fire due to dust, lint, etc., on top of a link cut-out being ignited by the blowing of a fuse; fire was communicated to neighboring woodwork, but was extinguished before it had an opportunity to spread. Insurance loss, $147.50.

April 23, 6.20 p. m.; during a severe rainstorm coil used in connection with the operation of electric track switch of the street railway system burned out and switch box was badly charred; otherwise no damage; members of Fire Department called on still alarm.

April 24, about 9.30 a. m., 800 Third street, South Boston; slight fire in basement hallway; linemen at work installing overhead wires permitted same to sag sufficiently to make simultaneous contact with trolley wire and street lamp-post, permitting electric current to pass from trolley wire to lamp-post, thence by means of gas main to building 800 Third street to water pipe, which was in contact with gas pipe running to side wall of gas bracket; holes melted in water and gas pipes and gas ignited; fire extinguished before any material damage was done.

April 25, 162 High street, about 11.50 a. m.; smoke and fire was seen issuing between paving blocks by a citizen who reported same to Engine 25; trouble was due to burn-out in underground mains; no damage except to mains.

May 2, 8.43 p. m., corner of Park square and Boylston street; burn-out occurred in underground electric main, followed by explosion in Lowry hydrant hole sufficient to lift hydrant cover several feet in the air and to lift frame upon which cover normally rested out of position; Engine 26 called on still alarm.

May 16, 6.10 a. m.; burn-out in underground electric mains followed by an explosion in manhole at the corner of Montgomery and Dartmouth streets; sufficient to lift cover off of manhole; no damage except to mains.

May 21, 1.28 a. m., Dover street, between Albany street and Dover Street Bridge; burn-out in underground electric mains followed by explosion sufficient to raise cover off of manhole; no damage except to cables.

May 26, about 5.35 p. m., junction of Essex and Kingston streets; burn-out in underground electric mains followed by an explosion in hydrant box sufficient to lift hydrant cover out of position; no damage except to mains.

June 1, 5.28 p. m., Box 53, 630 Washington street; fire on fifth floor caused by sparks from brushes and commutator of 1 horse power motor igniting oily lint, dirt, etc., fire being communicated to insulation of wiring and adjacent woodwork. Insurance loss, $8,297.37.

June 6, 2.03 a. m., 665 Washington street; Engine 26 called on still alarm on account of burning out of armature of ¼ horse power motor in basement; no damage except to motor.

June 7, street in front of 33 Lowell street electrically charged, same being due to breakdown of insulation of electric service cable passing beneath surface of street where trouble made itself manifest.

June 8, 6.57 a. m., Box 121, No. 159 A street, South Boston; burn-out occurred in electric service cable entering basement of building; woodwork beneath window somewhat scorched and same was destroyed in getting at fire; otherwise no damage except to cable; insurance loss, $63.72.

June 18, trolley wires of the street railway company burned off and fell to ground on Shawmut avenue opposite Pembroke street; on account of excessive flow of current due to these trolley wires being in the street, feed wire running from pole just south of Dover street became overcharged, insulation of wire was set on fire, and switch box on pole was also burned.

June 30, 2.55 p. m., 156 Tremont street; members of Engine 26 were called on still alarm for a slight fire in motor room or closet on third floor, fire being due to arcing and flashing at brushes and commutator of a 3 horse power motor, oil and dirt about motor being ignited.

July 1, about 5 p. m., corner Commonwealth avenue and Gloucester street; burn-out and explosion in catch box of underground electric system, both inner and outer cover of box broken; no damage other than to box and wires.

July 1, 10 p. m., Box 38, corner West Newton street and Columbus avenue; street lamp pole on fire; slight burning of pole due to the grounding of current from circuit feeding lamp on said pole.

July 3–6, 50 Franklin street; some time between Saturday (July 3 at 12 m.) and Tuesday (July 6 at 8 a. m.) insulation of a portable cord ignited, due to a short circuit of conductors in same; insulation of about five feet of the cable which was but seven feet long was burned; a large memorandum pad which cable crossed was destroyed, also a pasteboard box containing a bottle of medicine; fire then went out of its own accord.

July 6, 8.44 p. m., Box 628, corner Webster and Mill streets, East Boston; fire on second floor, probably due to lighted incandescent lamp being left in contact with wood sheathing on side wall.

July 29, about 8.30 a. m., corner Franklin and Devonshire streets; chain from derrick in service at building being constructed on the northwesterly corner of said streets was swung in contact with trolley wire of the Boston Elevated Railway Company; trolley wire burned off and fell to ground, in its fall striking a horse, knocking him down, but apparently not causing him serious injury.

July 30, 1.55 a. m., Box 41, Water street entrance to the Washington Street Tunnel; fire occurred in unused ticket booth of the Boston Elevated Railway Company; evidence as to the cause of fire was destroyed by the complete destruction of booth in question, but fire was without much doubt due to electrical trouble in connection with wiring of booth.

August 23, 8.33 a. m., automatic alarm, 33–35 Hawley street; defective condition of motor (12 horse power) resulted in short circuit and a slight fire; practically no damage except to motor.

August 31, 3.30 p. m., Box 631, No. 16 New street, East

Boston; wire at service switch became detached and swung in contact with wire of opposite polarity; resulting short circuit set fire to insulation on wire; no damage except to wires.

September 6, 11 a. m., Box 55, No. 15 Lagrange street; underground service cable burned off near building line, smoke entering building; damage confined to cable.

September 17, 9.52 p. m., Box 316, No. 12 Geneva avenue; defective cable cord in contact with grounded base of lathe resulted in short circuit which ignited inflammable oils; fire extinguished by occupants. Insurance loss, $192.75.

September 21, 3.11 p. m., Box 38, 148 Atlantic avenue; short circuit occurred in cable underground service just beneath building, which was built upon piles; no damage except to cable.

September 26, 7.05 a. m., Box 50, 82 Bedford street; underground service cable short circuited and burned off at building wall, setting fire to adjacent woodwork. Insurance loss, $37.59.

October 5, 3.48 a. m., Box 63, followed at 3.53 a. m. by second alarm from same box; No. 150 Beacon street; results of investigation showed that fire was evidently caused by defectively installed electric plate warmers, which were accidentally left in circuit, and became overheated; plate warmers were illegally installed without notification to this department, and had not been inspected and passed upon; strictly speaking, fire could hardly be called an electrical fire, as had warmers been heated by any other form of energy results would have been the same, trouble being due to improper installation, and not to defective apparatus or to electrical trouble. Insurance loss on building, $130,000; on contents, $50,000; insurance loss on building No. 148 Beacon street and contents, $197.06,—making a total insurance loss of $180,197.06 resulting from fire.

October 15, 2.18 p. m., Box 15, 94–96 Commercial street; burn-out occurred in underground electric service entering basement of building at a point just inside basement wall; no damage except to cable and about one and one-half feet square of sheathing overhead. Insurance loss, $57.

October 21, about 9 p. m., 42 Trinity place; arcing at and melting of metal parts in a plug cut-out as a result of plug fuse being partially unscrewed, causing poor connection in cut-out; no damage except to cut-out.

October 23, opposite 19 Everett avenue, Dorchester; during the night, while heavy rainstorm was in progress, fire-alarm wire, branch of tree and wire of series arc street lighting

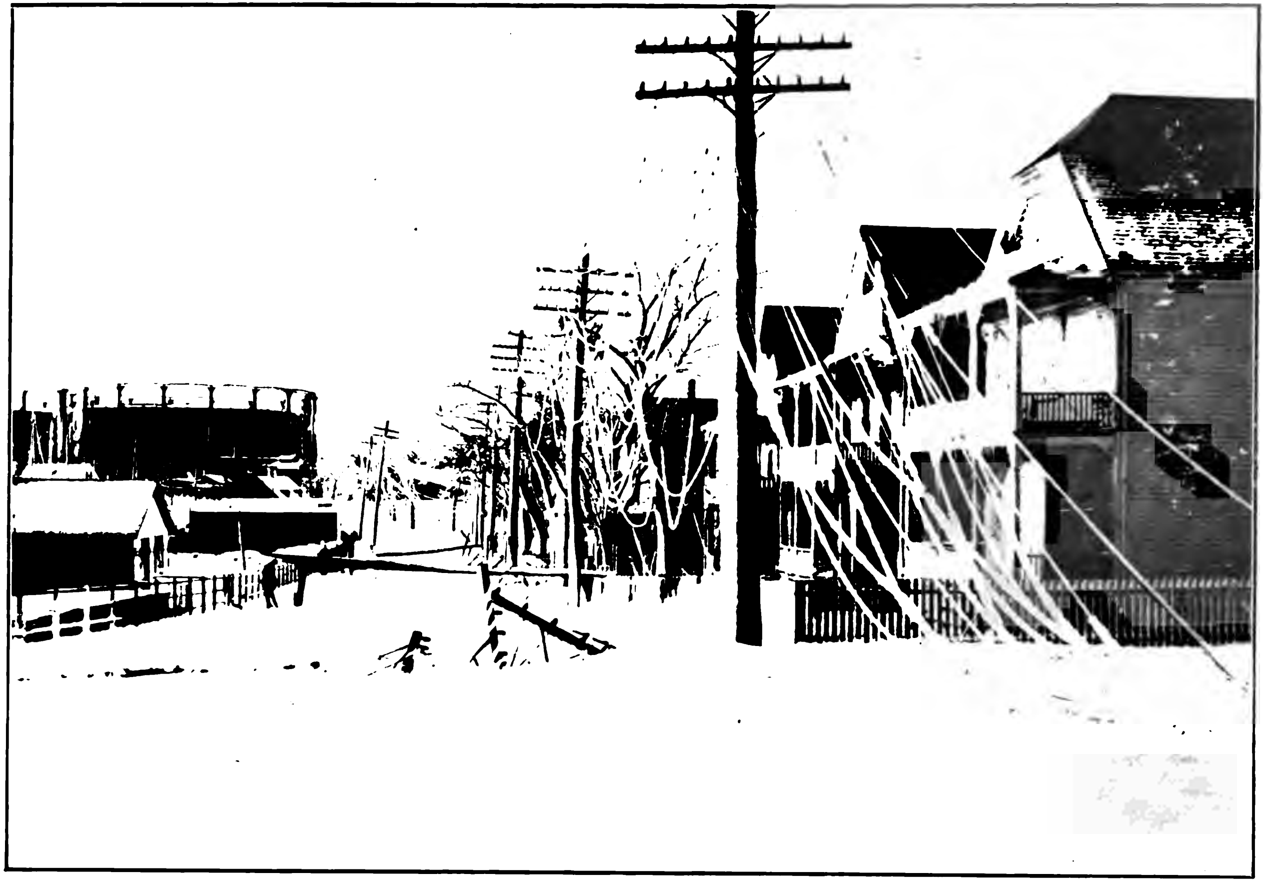


Plate No 10.— Freeport street, from Mill street, Dorchester, showing damage to poles and wires by storm of December 25 and 26, 1909.

circuit came in electrical connection; both wires and branch of tree burning off as a result; no other damage.

October 24, about 4.30 p. m., corner Washington and West Concord streets; cover of manhole at this location, also cover of manhole opposite 22 East Concord street, were lifted from their frames by slight explosion; same followed a burn-out in underground electric cables in street; no damage as far as could be learned except to cables.

October 25, about 4.30 p. m., pole W. D. 1308, corner of Dorchester avenue and Belfort street; piece of iron wire hanging upon primary A. C. wires and hanging in contact with 6-pin arm and lag bolts of same directly under arm to which A. C. wires were attached, resulted in the burning of 6-pin arm about half way through, burning of pole where lag bolt entered same, and burning off of ten pairs of telephone wires immediately back of the 6-pin arm. It is probable that iron wire was thrown to position where found by some thoughtless or malicious person.

November 4, 5.35 p. m., Box 217, rear No. 1125 Tremont street; breakdown of insulation occurred during rainstorm just above where cable of a series circuit left standpipe coming from underground to feed tungsten lamp on wall bracket; no damage except the burning of insulation on wire for a distance of about 18 inches.

November 4, Summer Street Bridge; slight fire at iron trolley pole, westerly end of bridge, in wooden boxing, caused by breakdown of insulation at that point, in submarine cable which feeds trolley at this pole; no damage except to cable and to boxing covering same.

November 4, Harvard avenue, near Cambridge street; cross between wires of the Boston Elevated Railway Company and the Edison Electric Illuminating Company; insulation on wires of both companies burned for several inches, otherwise no damage.

November 14, 77 Mountfort street; electric flatiron taken from its stand on table and placed on a chair by child who then turned current on; attention of parents being attracted by smoke, investigation followed; iron had burned its way through chair, had then dropped to floor where it had burned its way through linoleum carpet and had begun to burn its way through floor; current turned off and fire extinguished by occupants without assistance.

November 17, 5.40 p. m., 628–630 Washington street; an automatic alarm called Fire Department for a slight fire in basement; porter employed at the premises hung a coat and pair of overalls over a cut-out (cartridge type). As a result of loose connection at fuse clips, possibly caused when clothing was hung over same, arcing and heating at contact resulted and garments were ignited; no damage except to cut-out and to garments.

During the night of November 24–25, while a severe storm was in progress, the following troubles occurred which came to our attention through reports from fire, police or other sources:

November 24, 8.40 p. m., 2,300 volt A. C. circuit became crossed with secondary wires at Dorchester avenue and Mt. Vernon street, with consequent arcing and flashing.

8.47 p. m., corner Washington and Dudley streets; breakdown of insulation occurred in wire of arc circuit just above where it left standpipe on pole; no damage except to wire and slight burning of pole.

11.05 p. m., corner Freeport street and Neponset avenue; trolley pole electrically charged, due to wire of series arc street lighting circuit swinging in contact with trolley pole.

11.48 p. m., Mill street, Dorchester; breakdown of insulation of wire of series arc street lighting circuit at point just above where it left standpipe on pole; no damage except to wire.

November 25, 6.10 a. m., Commonwealth avenue, near corner Beacon street; Engine 33 and Hook and Ladder 16 were called on still alarm for a fire on pole caused by breakdown of insulation of 13,200 volt transmission circuit at pot head on underground cable where it terminated in a box attached to crossarm on pole; box was destroyed and pole and crossarm slightly injured.

November 29, shortly before 11 a. m., Clarendon street, opposite 220; burn-out occurred in underground electric main, and 2-inch gas service, which was in contact with tube containing mains, was burned off; damage was confined to service gas pipe and underground mains in pipe.

November 29, about 9 p. m., Columbia road at Geneva avenue; breakdown of insulation occurred in series arc circuit at base of street lamp pole; before fire could be extinguished it was necessary to pull pole down; no damage except to pole, lamp and conductors.

December 7, about 10.15 p. m., corner Havre and Gove streets; breakdown in insulation of series arc circuit cable at point just above where it left standpipe on pole at above location, as a result of which burn-out was communicated from cable to four other cables issuing from same pipe; in addition to damage to cables, pole was quite badly burned for about two square feet of its surface; severe rainstorm in progress at the time.

December 7, about 10.15 p. m., corner Chelsea and Maverick streets; breakdown in insulation of series arc circuit cable at point just above where it left standpipe on pole at above location, as a result of which wire burned off and insulation was burned for a foot or two and pole slightly burned; severe rainstorm in progress at the time.

December 11, about 10.40 p. m., No. 40 Summer street; short circuit occurred in flexible cord caused by chafing of same against a wooden box; box was ignited but was extinguished by occupants before any material damage was done; members of Fire Department called on still alarm.

December 12, about 3.54 p. m., No. 52 Endicott street; Engine 8 was called on still alarm on account of burning out of armature of a ¼ horse power motor, same being due to bearings becoming dry from lack of attention; no damage except to motor.

December 16, 12.25 p. m., No. 273 Cambridge street; Ladder 24 called on still alarm on account of burn-out in 100,000 C. M. underground service cable entering basement; damage confined to cable and slight burning and scorching of adjacent woodwork; insurance loss, $120.

December 17, 6.10 p. m., Bellflower and Boston streets; reported by Fire Department; trouble was due to series arc street lighting circuit being in contact with limb of tree, with resulting arcing and flashing at point of contact.

December 19, 4.44 p. m., L street and First street, South Boston; breakdown in insulation of series arc circuit, trouble being communicated to four other circuits in manhole.

December 19, 8.15 p. m., Walnut street, near house of Engine 20, Neponset; tree fire, reported by Fire Department, found to be due to wire of street lighting arc circuit being in contact with limb of tree, with consequent arcing and flashing at point of contact.

December 20, corner Weld and Worley streets; breakdown occurred in insulation of arc circuit at point where it entered series incandescent lamp fixture on pole; wire was burned off and pole was burned and charred at point where fixture was attached.

December 22, 11.55 p. m., No. 109 State street; Engine 25 and Ladder 8 called on still alarm on account of fire in cable terminal room in basement of building. Fire was due to a cross between wires from a motor generator set and bell wires, which bell wires passed through cable terminal room in contact with the wires in same; fire, while confined to cable room, which was fireproof, caused considerable damage, as all telegraph circuits running from this, the main station, were out of commission for a number of hours. Insurance loss, $86.

December 25, 5.20 a. m., opposite 28 Maple street, Dorchester; tree fire reported by Fire Department; trouble was due to wires of 2,300 volt A. C. circuit being in contact with limb of tree, arcing and flashing occurring at point of contact; Ladder 23 called on still alarm.

December 25, 10.40 p. m., Revere House, Bowdoin square; members of Engine 4 called on still alarm on account of slight fire in toilet room, basement, same being due to short circuiting of 110 volt lighting wires, due to wires and molding containing same being wet down from leaky pipe; no damage except to wires and a few inches of molding.

December 26, 5.25 a. m., 737 to 749 Dorchester avenue; Engine 13 and Ladder 20 called on still alarm to above numbered buildings; during severe blizzard in progress, pole near houses broke, permitting wires to come down in contact with roofs of buildings; arcing and burning occurred at points of contact between wires and roofs, and water conductors and pipes, both on the outside and inside of buildings, were electrically charged, and in some cases injuries to pipes resulted as a result of arcing and burning where current passed to or from same. Insurance loss, $498.75.

December 25–26, during severe blizzard many troubles with wires occurred as a result of same; 121 reports of wires down were made by police patrolmen during storm; fortunately there were no fires or accidents in so far as could be ascertained other than what is noted elsewhere.

December 26, 11.10 a. m., Box 8; No. 12 Atlantic avenue; caused by burn-out in wires at underground service, due to deterioration of insulation from effects of moisture; several hundred dollars worth of damage done. Insurance loss, $396.40.

December 27, 3.15 p. m., No. 367 Washington street; Fire Department called on a still alarm by frightened occupants on account of slight arcing and hissing at poor contact made by a 10-ampere Edison plug fuse, which had been loosened up in cut-out; no damage.

December 27, 11.44 p. m., No. 159–159A Tremont street; Engine 26 called on a still alarm for slight fire in basement, same being probably caused by broken wire of a branch circuit, arcing between two ends of which wire ignited insulation, fire being communicated to adjacent woodwork; damage consisted of injury to wires and molding and the scorching and burning of two or three square feet of woodwork in the vicinity, and smoke damage; insurance loss, $1,750, entirely on contents.

December 29, 6.20 p. m., 487 Tremont street; Engine 22

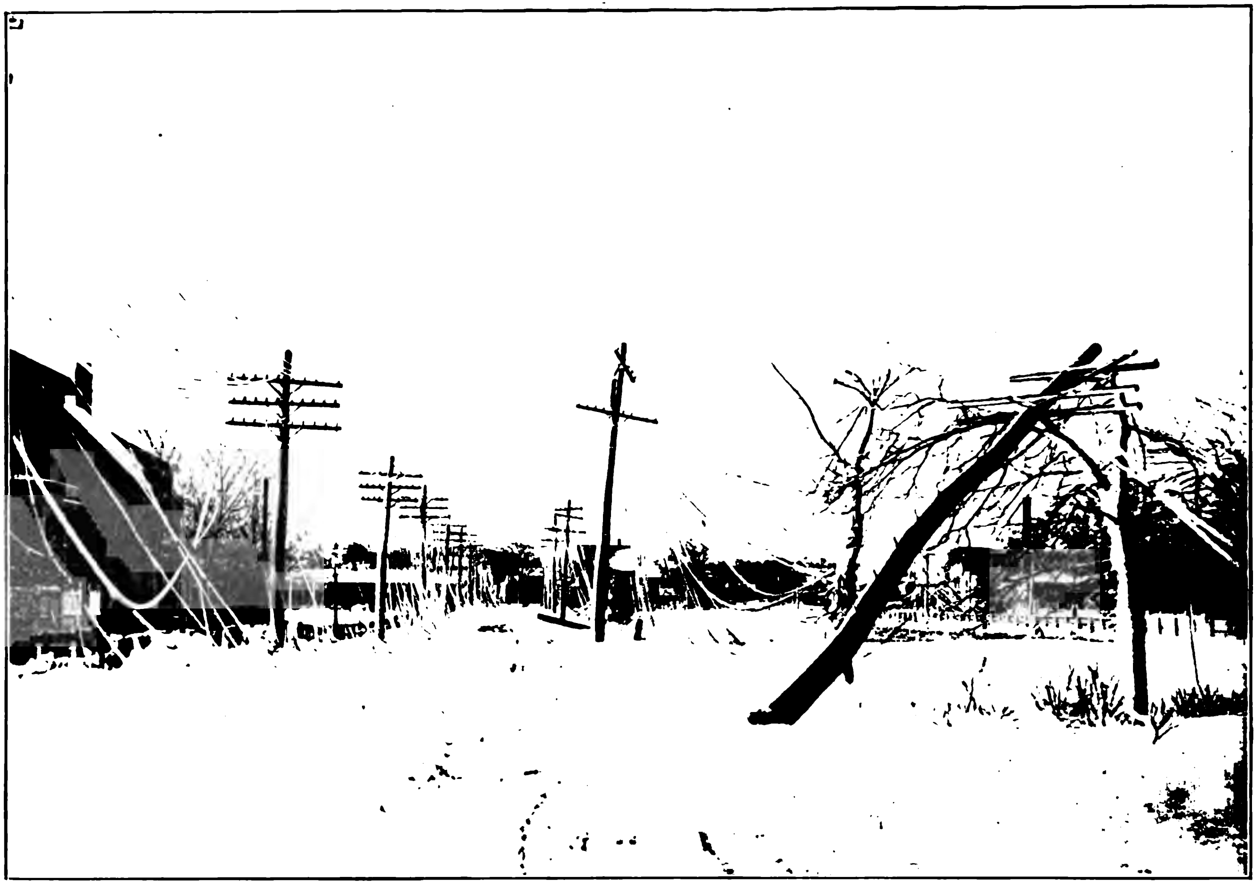


Plate No. 11.—Tenean street, Dorchester, showing damage to poles and wires by storm of December 25 and 26, 1909.

called on still alarm on account of burn-out in 100,000 C. M. electric service entering basement; with the exception of slight scorching of woodwork in the vicinity of service, damage confined to service.

December 31, about 7 p. m., corner Cheney street and Blue Hill avenue; tree fire, due to wire of street arc lighting circuit being in contact with limb of tree, arcing and flashing occurring at points of contact.

December 31, 9.03 p. m., City square, Charlestown; Chemical 3 and ladder carriage called on still alarm to Waverley House; water from leaky pipe ran down onto hanger board of arc lamp on ceiling beneath, grounding current from hanger board to an unused iron pipe back of hanger board, with consequent arcing and flashing; no damage except to hanger board.

January 4, 1910, 7.30 a. m., 63 Hereford street; on table in basement were a number of 6-volt storage batteries being charged; some of the batteries had boiled over and current leakage had taken place between two of the jars, liquid on surface of table acting as conducting medium; no damage except to batteries; members of Engine 33 were called on still alarm by janitor, who on opening room at time given above found considerable smoke in same.

January 7, 1 a. m., pole opposite 1061 Dorchester avenue; end of rope which had been used by lineman of a signaling system to temporarily fasten a new cable in position hung down in contact with wire of a series arc street lighting circuit; night was rainy, rope was wet, and current grounding through same set rope on fire; no other damage.

January 7, 6.48 a. m., Box 64, corner Shawmut avenue and Castle street; burn-out in switch box of the Boston Elevated Railway Company at above location; trouble was due to breakdown of insulation, short circuit resulting, two 1,000,000 C. M. cables being affected; damage confined to cables and box.

January 8, 12.45 a. m., Riverway, near Brookline avenue; members of Engine 37 called on account of fire on street arc light pole No. 1037; trouble was due to breakdown of insulation of arc light cable at gooseneck fixture at top of pole; no damage except to cable and slight burning of pole.

January 10, 3.30 a. m., yard of L street station, Edison Electric Illuminating Company; burn-out in manhole as a result of breakdown in insulation of series arc circuit; 23 arc circuits affected.

January 10, 6.15 a. m., members of Ladder 19 called to the corner of K and Eighth streets, South Boston, on account of tree fire; trouble was due to wire of series arc street lighting circuit being in contact with limb of tree, with consequent arcing and flashing at point of contact; no damage.

January 18, 7.20 p. m., Dorchester avenue and Edison green; Engine 43 called on still alarm on account of pole fire at above location. Same was due to wire of 2,300 volt A. C. circuit breaking away from insulator and dropping to crossarm on pole; crossarm was burned through; circuit was cut out for the night.

January 25, 5.45 p. m., corner Dorchester avenue and Southampton street; members of Engine 43 called on still alarm on account of burning of insulation of wires on pole; trouble was due to breakdown in insulation of cable of series arc circuit at point just above where it left underground terminal standpipe; no damage except to cable.

January 25, 7.30 p. m., Brookline avenue between Longwood avenue and Short street; tree fire reported by Engine 37: same was found to be due to wire of series street arc lighting circuit being in contact with limb of tree, arcing and flashing occurring at points of contact; no damage.

ACCIDENTS TO PERSONS DUE TO ELECTRICITY.

March 4, about 2.08 a. m., William A. Coolidge, an employee in the laboratory of the Edison Electric Illuminating Company, while attempting to change connections at ammeter, inserted in an arc light circuit for testing purposes, removed wire from ammeter while under load, arc resulting when circuit was opened, causing severe burns to the thumb and forefinger of his left hand; Coolidge was under the impression that line was dead when he removed wire.

March 8, 1.45 p. m., William H. Crough received injuries at the Charlestown Navy Yard which resulted in his death. Mr. Crough, with others, was at work making repairs in connection with electric crane machinery, and was standing on a grounded iron ladder when he made contact with one of the trolley wires at a potential of 550 volts and fell a distance of about seven feet, fracturing his skull, and dying about ten minutes after accident.

March 25, corner of Jeffries and Everett streets, East Boston; shortly after 5 p. m. Arthur T. Collins, during a heavy wind and rainstorm, picked up a 4,500 volt wire, which had broken and fallen to the street, and was killed.

March 31, about 1.40 a. m., Joseph Hamilton, an employee of the Boston Elevated Railway Company, and William P. Dunn, also an employee of the same company, received

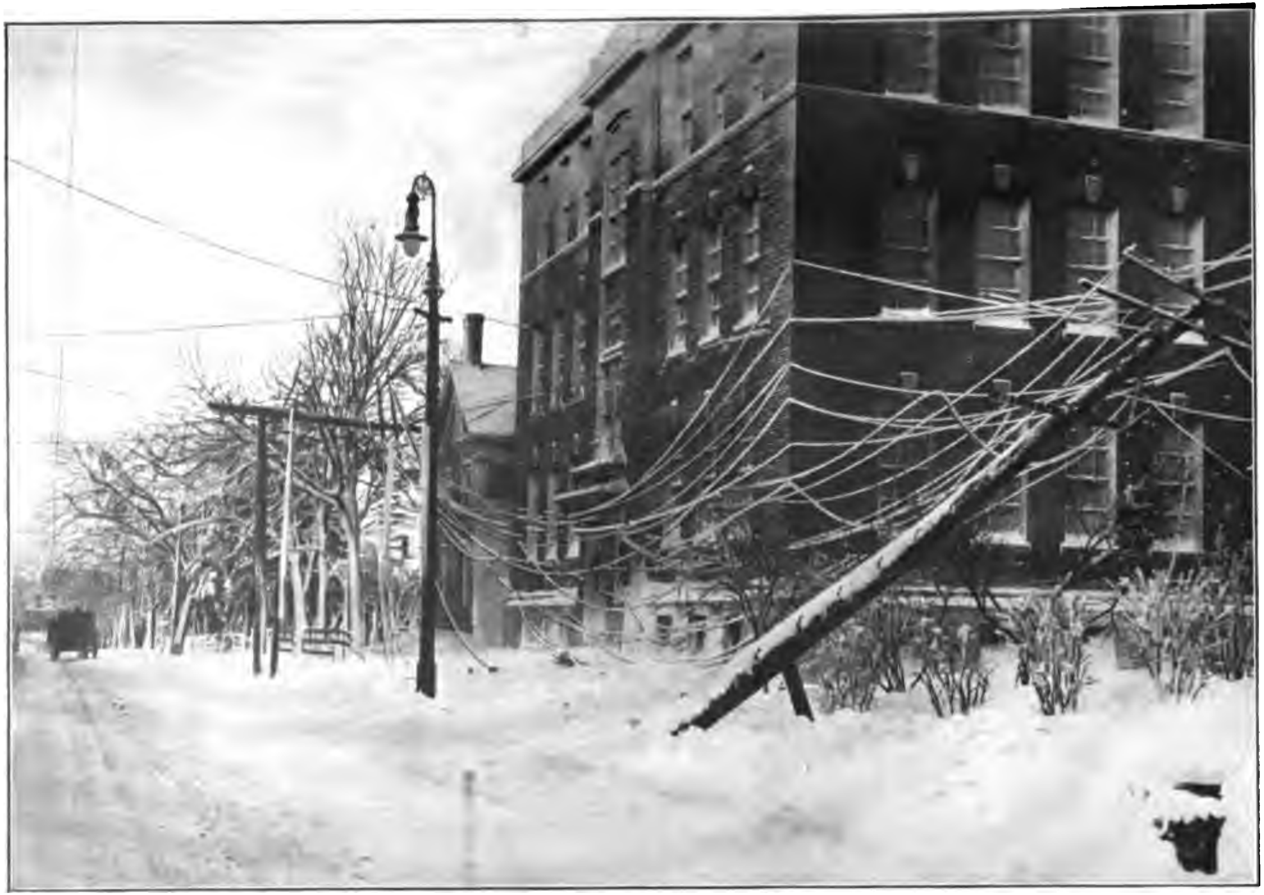


Plate No. 12.— Neponset avenue, Dorchester, showing damage to poles and wires by storm of December 25 and 26, 1909.

severe burns about the face and arms while at work at the Lincoln Wharf power station, short circuit being caused by a wrench which they were using in the removal of an iron pipe making simultaneous contact with live metal of a fuse board nearby.

April 3, about 5.07 a. m., Thomas Henry, an employee of the Boston Elevated Railway Company, while at work on a 1,000,000 C. M. cable at elevated structure, Causeway street, received burns to his face as a result of a short circuit caused by metal ladle which he was using making contact with joint of live conductor upon which he was working, the handle of ladle at the same time coming in contact with grounded air pipe used in connection with signaling system.

July 6, about 10.10 a. m., Augustus Smith and William Matthews, linemen employed by the Western Union Telegraph Company, while at work on lines of said company running on poles on the easterly side of New York, New Haven & Hartford Railroad track, received severe shocks of electricity as a result of wire upon which they were working coming in contact with a 2,300 volt A. C. circuit.

July 14, about 4.55 p. m., A. W. Coffin, employed by S. B. Condit Company, while at work at the third station of Edison Electric Illuminating Company, came in contact with live switch on 6,900 volt A. C. circuit, receiving burns to his arm and neck and being thrown to floor unconscious; injuries not serious.

July 13, 11.35 a. m., James McClelland, an employee of the Boston Elevated Railway Company, received severe burns to the face, hands and arms as a result of flash of short circuit caused by wrench which he was using for loosening up nuts in connection with the running rail of the Boston Elevated Railway Company at the draw of the new Charlestown Bridge, making simultaneous contact with live third rail of system.

August 12, about 4.30 p. m., H. J. Grant and W. T. Maloney, employees of the wiring force of the Boston Elevated Railway Company, while at work at the Lincoln power station received bad burns about the face as a result of short circuit; they were to remove an unused and dead wire from a conduit, it being necessary to first cut wire before its withdrawal; by error they attempted to cut the wrong wire, which was alive, and short circuit was caused by cutters making simultaneeus contact with edge of pipe when wire was cut.

September 19, about 1 a. m., Mr. M. Murdock, an employee of the Boston Elevated Railway Company, while at work at State Street Station of the tunnel, received severe burns to one hand and slight burns to the other, also had his face and hair scorched as a result of short circuit; he was about to make a wire connection for temporary lights to work by when his knife caused a short circuit between the wire and another wire in junction box where he was working, with the result as above stated.

October 13, about 9.57 a. m., J. T. Kilroe, an employee of the A. & J. M. Anderson Company, while at work in the third station of the Edison Electric Illuminating Company on Atlantic avenue had right arm burned as a result of short circuit caused by a copper filler which he was inserting between two plates or bars of bus bar, making simultaneous contact with bus bar, which was alive, and grounded framework supporting same; difference of potential between bus bar and ground 127 volts.

October 15, about 2.55 p. m., J. H. Smith, a helper in the employ of A. & J. M. Anderson Company, had his left hand slightly burned on back as a result of short circuit caused by his attempting to clamp a lead-covered cable to a live bus bar overhead; Smith was not a capable man for the work which he was on.

October 30, about 9.25 a. m., Fred Tangley, an employee of the Edison Electric Illuminating Company, while attempting to start No. 3 generator at the eleventh station of said company by an error caused a short circuit and received burns to the back of his right hand.

October 30, E. Erickson, an employee of A. & J. M. Anderson Company, had his left thumb and forefinger burned as a result of short circuit between bus bar of switch board and iron frame supporting same upon which he was at work at the time.

November 14, about 8.25 a. m., E. Hambarg, an employee of the Lundin Electric Company, while at work at the eighth station of the Edison Electric Illuminating Company installing a small transformer on switch board, came in contact with knife switch of 2,300 volt A. C. circuit; he received slight burn on left arm and was thrown to floor; his burns were dressed at the station and he resumed work.

November 16, about 3.20 p. m., Frank Taylor, an employee of the General Electric Company, while at work at the thirtieth station of the Edison Electric Illuminating Company, received severe burns to his hands as a result of short circuit caused by monkey wrench, which he was using at the time, short circuiting shunt connections of one of the low potential generators of motor generator set.

December 7, 9.41 a. m., Thomas Power, a carpenter in the

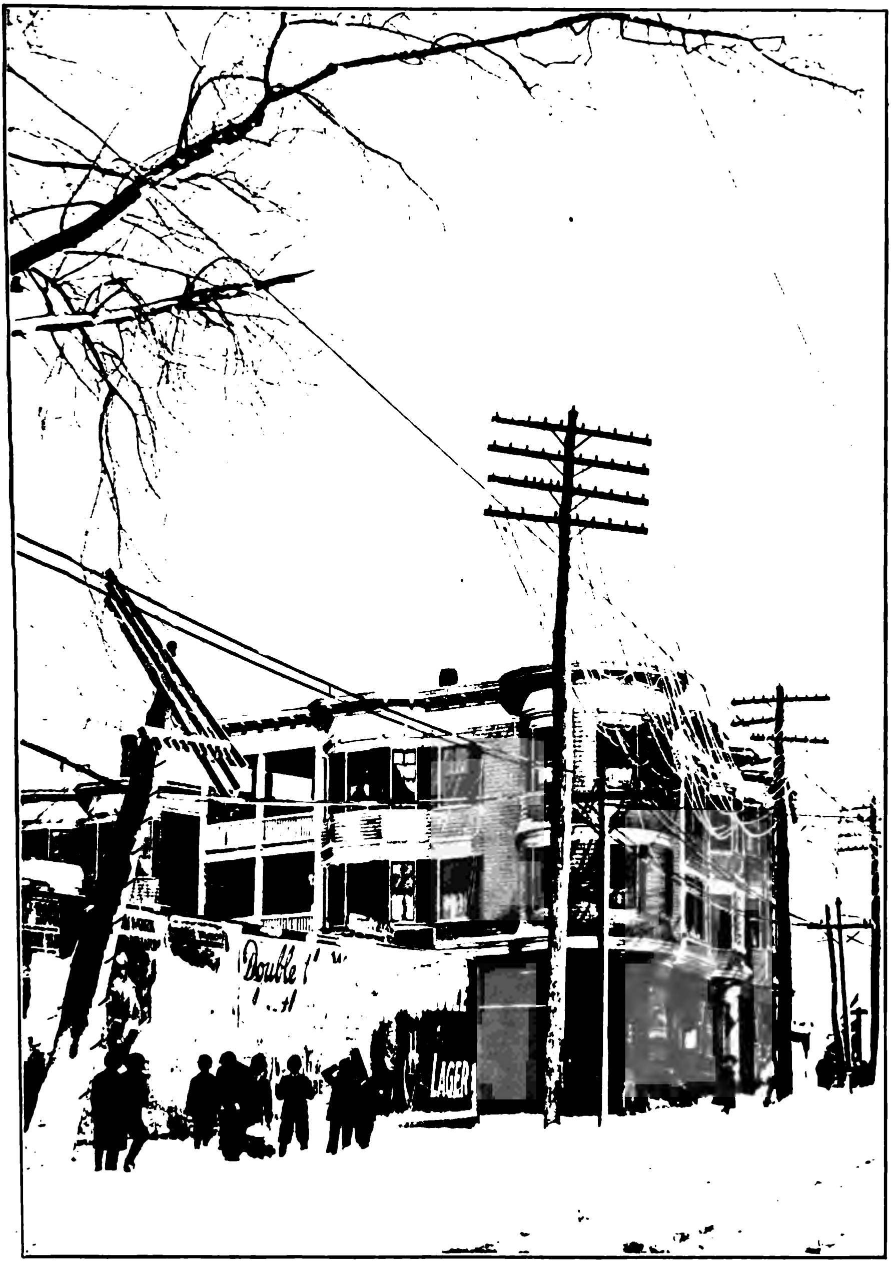


Plate No. 13.— Dorchester avenue, opposite No. 737. showing damage to poles and wires by storm of December 25 and 26 1909

employ of the Boston Elevated Railway Company, while at work on Elevated structure, near Battery Station, sawing off the end of a sleeper, received severe burns to the face and hands as a result of short circuit caused by saw which he was using making simultaneous contact with third rail and grounded structure.

December 10, 2.10 p. m., William Dwyer, while at work at the twelfth station of the Edison Electric Illuminating Company, had the back of his left hand burned as a result of short circuit; Dwyer was attempting to put a bolt through a piece of Alberene stone and angle iron for the purpose of fastening stone to angle iron when the end of bolt came in contact with live battery bus bar, current grounding through bolt and angle-iron hanger.

December 12, about 7.57 a. m., Bartley Flaherty, an employee of the Boston Elevated Railway Company, while at work at the Battery Street Station of the Elevated system received severe burns to his face, caused by hammer which he was using at time in cable box making simultaneous contact with bare live connection and a bolt which was, in turn, in contact with grounded structure.

December 18, shortly after midnight on the morning of the 18th, Capt. William W. Riley of Engine 4, Boston Fire Department, while at work at stable fire, Hamilton place, off No. 420 Main street, Charlestown, received a severe shock of electricity by coming in contact with a wet hose, which hose in turn was in contact with wire of series street arc lighting circuit. A hole was also burned in hose at point where hose was in contact with wire.

December 26, about 6 a. m., Catherine Boyle, five years of age, residing at 743 Dorchester avenue, attempted to turn water faucet at sink, received a shock of electricity, causing slight burns on the inside of left hand, which hand she used when attempting to open faucet, and knocking her down.

At about the same time Mrs. Catherine Boyle, mother of child referred to, attempted to pull chain in toilet room and received an electric shock, also slight blister or burn to the tip of one finger; a severe blizzard was in progress at the time, as a result of which a pole had broken off, permitting wires which had been sustained by same to fall upon roof and cornice of building where trouble occurred, current from said wires, by means of water conductors, passing to and charging pipes within building.

January 10, 1910, R. S. Hanks, an employee of the Laboratory Department of the Edison Electric Illuminating Company, while testing meters, received slight burn to the back of hand as a result of short circuit due to improper connections made through a misunderstanding; potential of circuit 220 volts.

January 27, 7.15 p. m., Henry J. Hedler, an inspector or patrolman of the Edison Electric Illuminating Company, while on street arc lamp pole No. 3,034, Brookline avenue, for the purpose of ascertaining trouble with an arc lamp which was not burning at the time, received a shock causing him to fall to ground. He received compound comminuted fractures of both bones of both legs and internal injuries. On February 11 he died at the City Hospital as result of injuries sustained.

January 28, about 10 a. m., William Hill, employed by Oliver Whyte & Co., wire workers, while at work at the third station of the Edison Electric Illuminating Company received slight burns to two fingers of right hand as a result of short circuit taking place in lamp cord of pendant light which he had in his hand at the time; potential of circuit 110 volts.

LIST OF WIRE DEPARTMENT EMPLOYEES JANUARY 31, 1910.

No.	Occupation.	Salary per Annum.
1	Commissioner	$5,000 00
1	Chief inspector	2,000 00
1	Assistant chief inspector	1,800 00
1	Chief clerk	1,600 00
2	Engineers	1,500 00
3	Inspectors	1,500 00
1	Clerk and inspector	1,500 00
1	Clerk	1,200 00
13	Inspectors	1,200 00
2	Inspectors	1,100 00
1	Stenographer	1,100 00
1	Stenciler	1,000 00
2	Drivers	1,000 00
6	Inspectors	1,000 00
1	Clerk and deputy inspector	800 00
1	Deputy inspector	800 00
1	Telephone operator	600 00
39		

STATEMENT OF DEPARTMENT APPROPRIATION AND EXPENDITURES FROM FEBRUARY 1, 1909, TO JANUARY 31, 1910, INCLUSIVE.

Appropriation	$55,000 00

EXPENDITURES.

Salary and wages:	
James E. Cole, Commissioner	$4,986 28
Employees	45,065 37
Horse keeping	1,650 41
Traveling expenses	1,275 86
Printing	820 19
Telephone service	556 31
Office expense	208 39
Stationery	158 43
Postage	148 50
Boston Fire & Police Notification Company	50 00
Advertising	44 78
Instruments, tools, etc.	31 57
	$54,996 09
Balance in treasury	3 91
	$55,000 00

LIST OF PROPERTY OF THE WIRE DEPARTMENT.

1 High potential testing apparatus.
1 Transformer.
1 Test board, capacity 220 volts, 300 amperes.
1 Auxiliary test board, capacity 220 volts, 150 amperes.
1 Reflecting galvanometer, condenser, telescope, scales, etc.
1 Set standard resistance coils.
1 Lamp stand and scale.
1 Shunt coil.
1 Set double connector posts.
1 Discharge key.
1 Reversing key.
1 Electrostatic Voltmeter, No. 70,647.
1 1,500-volt Direct Current Voltmeter, No. 3,438.
1 300-volt Weston Direct Current Voltmeter, No. 3,317.

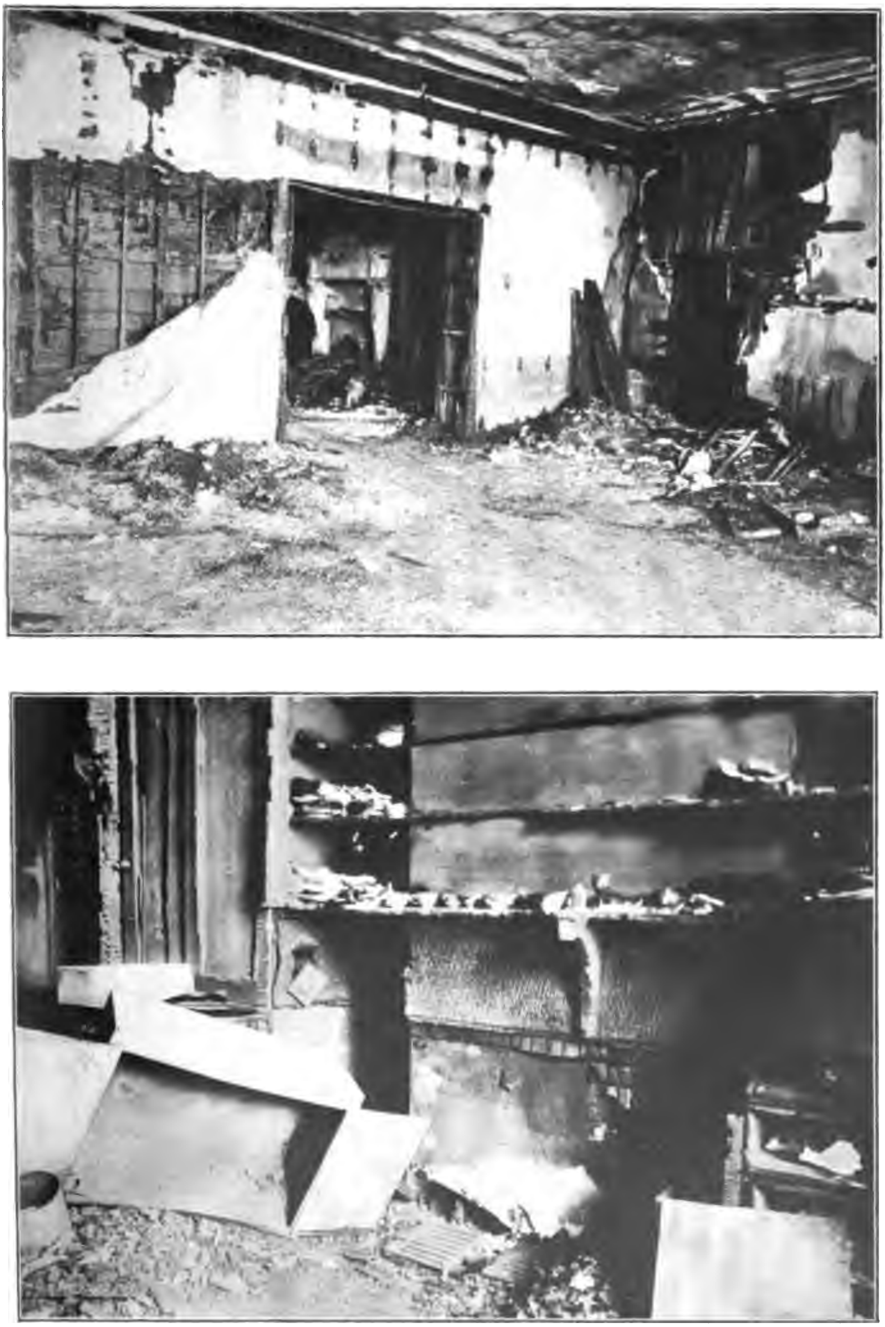
1 300-volt Weston Direct Current Voltmeter, No. 6,020.
1 300-volt Weston Direct Current Voltmeter, No. 15,459.
1 300-volt Weston Direct Current Voltmeter, No. 15,455.
1 300-volt Weston Portable Direct Current Voltmeter, No. 15,456.
1 300-volt Weston Alternating and Direct Current Voltmeter, No. 1,044.
1 15-volt Weston Direct Current Voltmeter, No. 4,717.
1 500-ampere Weston Direct Current Ammeter, No. 2,428.
1 150-ampere Weston Direct Current Ammeter, No. 926.
1 50-ampere Weston Direct Current Ammeter, No. 2,381.
1 1,500-mil-ampere Weston Direct Current Mil-Ammeter, No. 2,433.
1 200-ampere T. & H. A. C. Ammeter, No. 29,421.
1 15-ampere T. & H. A. C. Ammeter, No. 21,507.
1 15-ampere Weston Direct Current Ammeter, No. 8,426.
1 Queen Testing Set, No. 389.
1 Standard resistance coil with wheatstone bridge.
1 Generator, 50,000 ohms.
1 Bichloride of silver battery, 150 cells.
4 Bichloride of silver batteries, each 60 cells.
2 Horses.
2 Express wagons.
3 Business wagons.
4 Sets of harnesses.
5 Robes.
7 Blankets.
2 Cameras (complete).
Miscellaneous tools used in connection with overhead construction.
Draughting instruments.

DESCRIPTION OF PLATES.

Plate No. 1.— Is a view of Albany street, north from Sheridan square (1906 district), showing the condition of the street before poles and overhead wires were removed, showing a line of poles on both sides of the street heavily laden with electric wires, and a heavy line of Boston Elevated Railway Company feeders crossing the street in the foreground.

Plate No. 2.— Is a view taken from the same point as No. 1 after all poles and wires had been removed.

Plate No. 3.— Is a view of Warren street, north from Savin street (1908 district), showing the condition of the street



Plates Nos. 14 and 15.— Fire caused by defective installation of electric plate warmers.

before poles and overhead wires were removed, showing a line of poles on each side of the street, heavily laden with electric wires.

Plate No. 4.— Is a view taken from the same point as No. 3 after all poles and wires had been removed.

Plate No. 5.— Is a view of Warren street, north from Copeland street (1908 district), showing the condition of the street before poles and overhead wires were removed, showing a line of poles on each side of the street heavily laden with electric wires.

Plate No. 6.— Is a view taken from the same point as No. 5 after all poles and wires had been removed.

Plate No. 7.— Is a view of Warren street, north from the junction of Harrison avenue (1908 district), taken before the poles and overhead wires had been removed, showing high potential wires crossing over the public thoroughfare.

Plate No. 8.— Is a view taken from the same point as No. 7 after all poles and wires had been removed.

Plate No. 9.— Is a view of Freeport street, near Pleasant street, Dorchester, taken the morning after the severe snow and sleet storm of December 25 and 26, 1909, showing some of the damage to the poles and overhead wires.

Plate No. 10.— Is a view of Freeport street, from Mill street, Dorchester, showing the damage to the poles and overhead wires by the storm of December 25 and 26, 1909; line of poles on one side of street broken off and lying across street, wires heavily laden with ice sagging and broken all along the line.

Plate No. 11.— Is a view of Tenean street, Dorchester, showing the damage to poles and wires by the storm of December 25 and 26, 1909; poles broken off and heavily coated wires broken and lying all over the street.

Plate No. 12.— Is a view of Neponset avenue, Dorchester, showing the damage to poles and wires by the storm of December 25 and 26, 1909.

Plate No. 13.— Is a view of Dorchester avenue, opposite No. 737, showing damage by storm of December 25 and 26,

1909. The fall of this pole permitted wires to come in contact with roofs of several buildings, causing slight fires as noted elsewhere.

Plate No. 14.— Is a view of the interior of the dining room at No. 150 Beacon street, taken after a fire occurred.

Plate No. 15.— Is a view of the butler's pantry in the above house, No. 150 Beacon street, showing the electric plate warmer (top removed), the improper installation of which was the cause of the fire.

21

ANNUAL REPORT

OF THE

WIRE DEPARTMENT

FOR THE

YEAR 1910-11

CITY OF BOSTON
PRINTING DEPARTMENT
1911

RH 17 Dec 1912
HARVARD UNIVERSITY
SCHOOL OF
LANDSCAPE ARCHITECTURE
Gift of the Dept
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ANNUAL REPORT

OF THE

WIRE DEPARTMENT

FOR THE YEAR 1910–11.

OFFICE OF THE COMMISSIONER OF WIRES,
11 WAREHAM STREET, BOSTON, February 1, 1911.

HON. JOHN F. FITZGERALD,
Mayor of the City of Boston:

SIR,— I herewith submit report showing the appropriation and expenditures of the Wire Department and the work performed from February 1, 1910, to January 31, 1911, inclusive.

The underground district for 1911 has been prescribed as provided for in chapter 347 of the Acts of 1908, same being Dorchester avenue from Romsey street to the further side of Peabody square. This seems to have been the logical location to select as it is a continuation of last year's district, which was Dorchester avenue from Fort Point channel to Romsey street, and because the number and condition of the poles and wires on Dorchester avenue are such as to demand prompt attention.

In past years the complete clearing of the prescribed underground districts of poles and overhead wires has each year been delayed from one cause and another into the following year, but this year the hearty co-operation of the various interests makes it possible to report the 1910 district as cleared.

The losses during the year from fires found by the department to have been due to electrical causes have been unusually small, the total insurance losses from such fires being but $3,936.99.

It is worthy of special mention, and it is a pleasure to report, that the American Telephone and Telegraph Company, whose long distance wires and poles for the support of same were exempt from the requirements of the underground acts, but whose representative agreed in consultation with the Commissioner in 1908 to have all their poles and overhead wires in the various prescribed underground districts in this city removed within three years, have fulfilled their word to the letter within the time agreed upon.

I feel it again necessary to call attention to the fact that the department's valuable records are not properly protected and that a fireproof vault should be provided.

Yours respectfully,

JAMES E. COLE,
Commissioner of Wires.

EXTERIOR DIVISION.

The prescribed underground district for 1910 comprised that portion of Dorchester avenue between Fort Point channel and Romsey street, a total distance of ten thousand six hundred forty (10,640) feet, which distance exceeded by eighty (80) feet the two miles as authorized under chapter 249, Acts of 1898.

Lines of poles stood on each side of the avenue the entire length, one hundred eighty-five (185) poles in all, owned by the following companies: Twenty (20) by the Edison Electric Illuminating Company, ninety-eight (98) by the American Telephone and Telegraph Company, and sixty-seven (67) by the New England Telephone and Telegraph Company, these figures not including the iron trolley poles of the Boston Elevated Railway Company, same being exempt.

Attached to these poles, and passing overhead on Dorchester avenue between Fort Point channel and Romsey street, there was approximately six hundred forty-eight thousand seven hundred seventy (648,770) feet of wire, or nearly one hundred twenty-three (123) miles, not including the trolley or span wire of the Boston Elevated Railway Company.

The above wires were owned by the following companies: Edison Electric Illuminating Company, American Telephone and Telegraph Company, New England Telephone and Telegraph Company, West End Street Railway Company, Fire Alarm Branch (Boston Fire Department), Police Signal Service (Boston Police Department) and the Mutual District Messenger Company.

In order to provide distribution facilities from the underground conduits along the route of the 1910 district, it has been necessary to grant, as provided for in chapter 347, Acts of 1908, fifteen (15) terminal pole locations. Of these, three (3) were for the Edison Electric Illuminating Company, and twelve (12) were for the New England Telephone and Telegraph Company and were located as follows: Those for the Edison Electric Illuminating Company on Alger street near

Dorchester avenue, Crescent avenue near Dorchester avenue and on Damrell street near Dorchester avenue; those for the New England Telephone and Telegraph Company were on Bellflower street, Dexter avenue, Damrell street, Edison green, Grafton street, Harbor View street, Howell street, Leeds street, Locust street, Romsey street, Sudan street and West Sixth street, all near Dorchester avenue, one pole each and underground connections from the conduits on Dorchester avenue to the poles. In addition to the above terminal pole locations along this year's district, three were granted in other parts of the underground districts, as follows: One on Myrtle street southerly from Revere street, city proper (iron pole for New England Telephone and Telegraph Company); one on Woodcliff street near Blue Hill avenue, the underground district for 1909, and one on Bray street near Washington street, Roxbury, in the underground district for 1904, both of these being for the New England Telephone and Telegraph Company.

A number of other petitions from the two companies above mentioned were considered, hearings being given in accordance with the law, and the petitioners then given leave to withdraw, it not being deemed necessary or advisable to grant the locations requested.

The large number of new telephone installations and the changing over of existing installations to the new systems has necessitated a greatly increased number of inspections, there being this year some twenty-five hundred more inspections on this class of work than during the year previous.

In the selection of new pole locations by the various companies, our engineers have accompanied the engineers of the companies interested, as has been the custom for a number of years, and sketches of the proposed locations are kept on file in this office in catalogue form for comparison with plans filed when request is made to the Board of Street Commissioners for locations desired.

Aside from the number of poles set on the public streets and avenues, as recorded in the table printed elsewhere, a large number of poles have been set in private unaccepted streets and in the rear of lots, which are inspected and a record made of same.

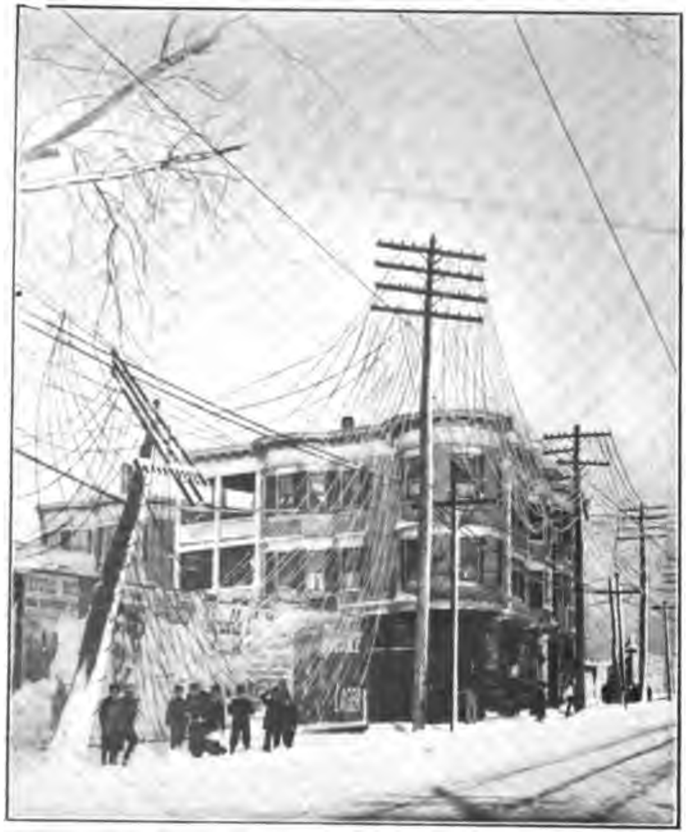

PLATE NO. 1.—DORCHESTER AVENUE AT RAWSON STREET, WITH WIRES.
(Photograph taken after storm of 1909.)

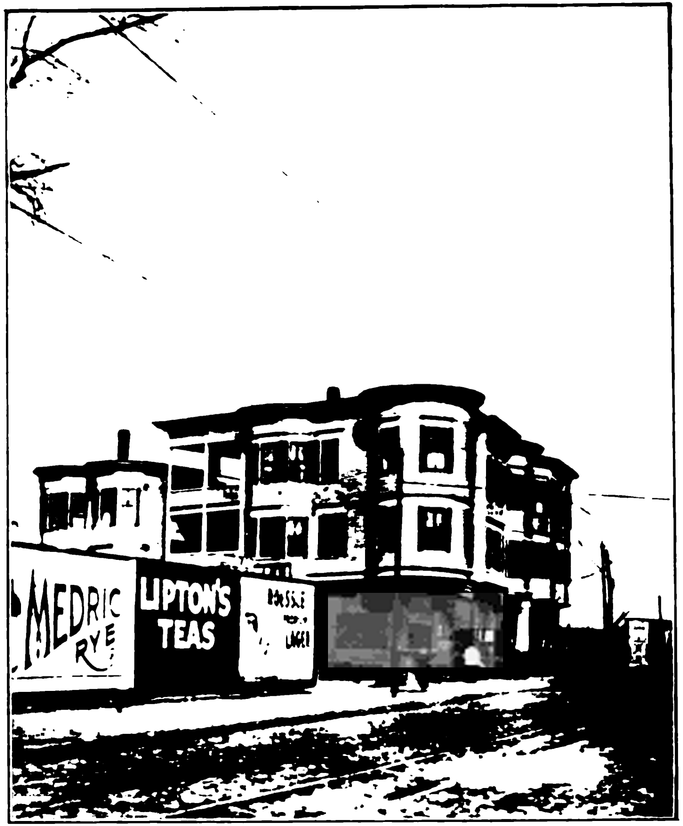

PLATE NO. 2.—DORCHESTER AVENUE AT RAWSON STREET, WITHOUT WIRES.

Accompanying this report will be found a plan showing poles and wires on and over that portion of the city which has been selected in accordance with the law as the underground district for 1911, namely, Dorchester avenue from Romsey street to Peabody square. Also photographs showing the condition of some of the streets already prescribed, both before and after overhead wires and poles supporting same were removed.

During the year the various companies doing underground work have opened one hundred thirty-five (135) different streets and avenues within the city limits for the purpose of constructing new conduits or extending or enlarging their existing conduits.

Fifty-six (56) of these were in the original underground district or the congested portion of the city lying north of Dover and Berkeley streets, while the remaining seventy-nine (79) were scattered throughout the rest of the city and suburbs.

The following table will show the overhead work for the year, from February 1, 1910, to January 31, 1911, inclusive:

Permits granted by the Board of Street Commissioners to set poles	82
Number of poles included in above orders	299
Permits granted by the Board of Street Commissioners to remove poles	72
Number of poles included in above orders	165
Number of streets or avenues included in above orders	127
Number of new poles set in new locations	323
Number of poles removed	334
Number of poles reset, straightened, renewed, etc.	1,305
Number of new pole locations selected	546
Number of poles now standing in public streets	14,762
Amount of dead wire removed by Wire Department (in feet)	266,860
Defect notices sent out	2,655
Number of defects included in these notices	7,278
Number of defects corrected	5,266
Notices of new work and special inspections	17,231
Amount of wire removed by owners (in feet)	3,694,010

The Board of Street Commissioners have also granted the following orders, which come under the jurisdiction of this department inasmuch as they pertain in one way or another to the overhead or underground electric wires.

Police signal post locations	7
Fire alarm post and test box locations	11
Extensions of time on permits previously issued	8
Attachments of one company's wires to poles of another	42
To stretch overhead wires across public streets	7
To lay underground conduits in public streets	2
Extension of street railway tracks, etc.	51
Erection of derricks, stretching guy ropes, etc.	16
Transfer of poles from one company to another	6
Moving buildings, etc.	1
Total	151

The following companies and individuals have laid new conduits, extended present service or added to their underground cables during the past year:

For Electric Light and Power Purposes.

Boston Elevated Railway Company.
Charlestown Gas and Electric Company.
Edison Electric Illuminating Company.

For Telephone, Telegraph, Signaling and Other Purposes.

Boston Automatic Fire Alarm Company.
Boston District Messenger Company.
Boston Low Tension Wire Association.
Fire Alarm Branch (Boston Fire Department).
Homœopathic Hospital.
Massachusetts Telephone and Telegraph Company.
Mixer Brothers Company.
New England Telephone and Telegraph Company.
New York Central and Hudson River Railroad.
Police Signal Service (Boston Police Department).
Postal Telegraph-Cable Company.
Schoolhouse Commission, City of Boston.
Telepost Company.

The electrical approvals of the department for permits for opening the streets for underground electrical work during the year numbered one thousand nine hundred seventy-five (1,975); two thousand two hundred seventy-three (2,273) reports have been made by the underground inspectors on this work, which necessitated over seven thousand four hundred ninety-five (7,495) inspections.

Character of Cables Used by the Various Companies.

COMPANY.	Kind of Insulation.	Sizes.
American Tel. and Tel. Co.	Paper	108 and 144 conductor.
Boston Automatic Fire Alarm Co.	Rubber	25, 50, 75 conductor.
Boston District Messenger Co.	Rubber	2 and 6 conductor.
Boston Elevated Railway Co.	Rubber	500,000 to 2,000,000 C. M.
Charlestown Gas and Electric Co.	Rubber	No. 4.
Edison Electric Illuminating Co.	Rubber and Paper	No. 8 to 1,000,000 C. M.
Fire Alarm Branch (B. F. D.)	Rubber	6, 10 and 19 conductor.
Mass. Tel. and Tel. Co.	Paper	25 and 50 conductor.
New. Eng. Tel. and Tel. Co.	Paper	15 pair to 600 pair.
Park Department (C. of B.)	Rubber	No. 4.
Police Signal Service (B. P. D.)	Rubber	7 conductor.
Postal Tel.-Cable Co.	Paper	25, 26, 30, 60, 76 conductor.
The Mixer Brothers Co.	Paper	60 conductor.
Telepost Company	Paper	10 conductor.

Table Showing the Underground Electric Service of Boston by Yearly Installation, 1894–1910.

YEAR.	Feet of Conduit Installed.	Feet of Single Duct Installed.	Feet of Cable Installed.	Number of Manholes Installed.	Number of Services Installed.	Feet of Edison Three-wire Tube Installed.	Number of Distribution Boxes, E. E. I.
1894 *	213,160	1,762,401	1,342,731	1,322	3,286	273,473	381
1895	131,128	537,935	1,086,957	555	894	33,233	5
1896	146,759	711,081	1,088,012	585	1,108	37,165	11
1897	154,580	742,392	853,794	782	1,099	46,481	40
1898	112,254	835,180	1,202,914	556	947	13,463	6
1899	122,603	763,636	1,613,871	516	912	17,843	14
1900	145,163	816,968	784,488	582	1,035	34,136	24
1901	115,318	797,674	979,371	422	824	24,762	37
1902	87,396	529,383	784,032	327	1,000	28,496	42
1903	67,614	506,452	557,419	268	895	20,057	16
1904	46,539	365,162	486,474	176	642	13,080	12
1905	62,095	423,699	597,766	282	794	14,129	7
1906	84,465	627,428	534,675	366	976	14,959	9
1907	41,652	207,150	485,526	184	703	11,511	8
1908	41,374	258,815	417,228	220	747	7,045	8
1909	63,544	491,439	586,801	314	1,024	9,876	8
1910	84,033	416,076	758,601	347	1,061	10,508	18
Totals...	1,719,677	10,792,871	14,159,660	7,804	17,947	610,217	646

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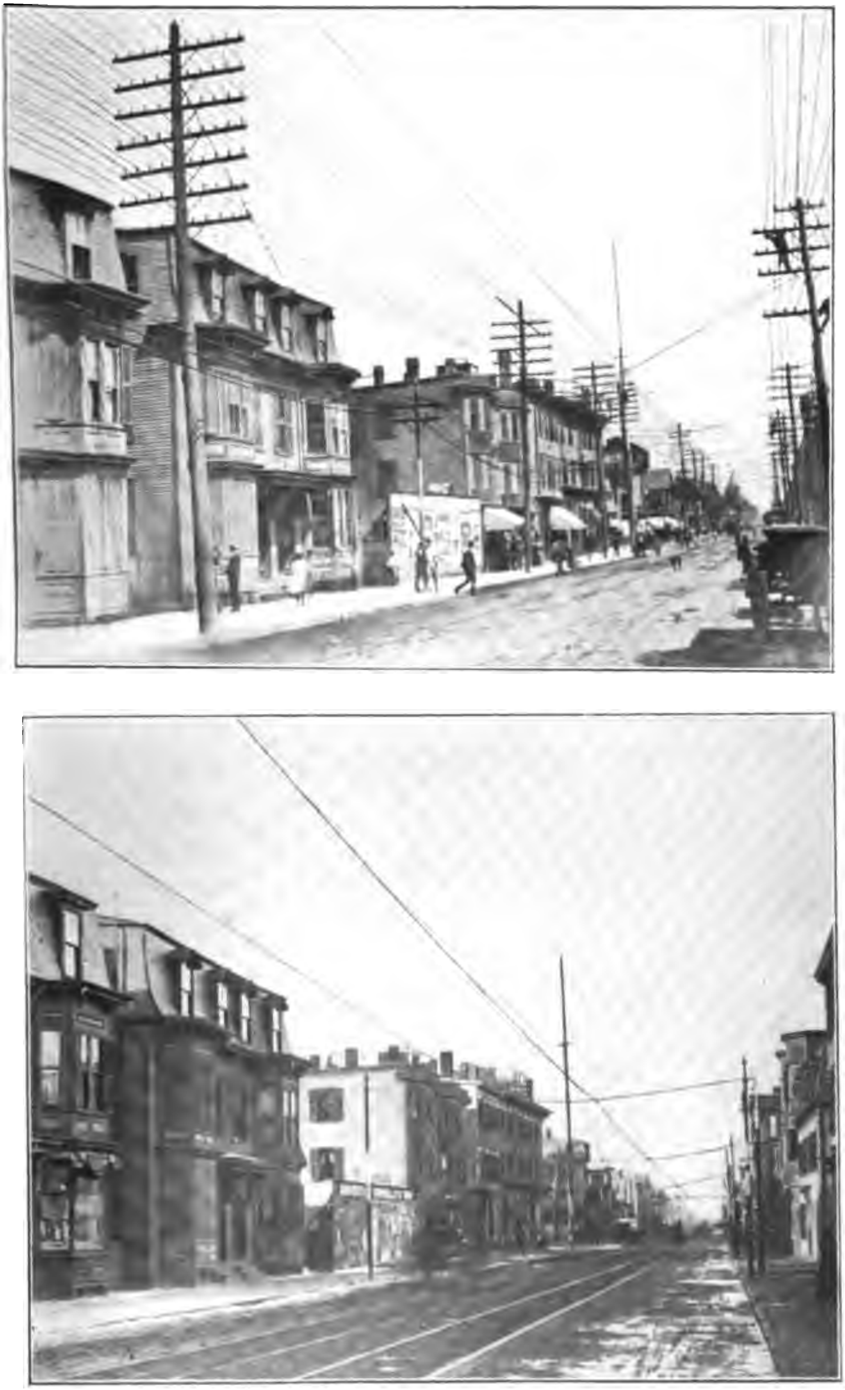
* Includes underground service prior to formation of the Wire Department in 1894.

Table Showing Underground Work for the Year 1910.

Company.	Feet of Conduit.	Feet of Duct.	Feet of Cable.	Number of Manholes.	Number of Services.
American Tel. and Tel. Company*			30,775		
Boston Automatic Fire Alarm Company			600		
Boston District Messenger Company			1,725		
Boston Elevated Railway Company	9,485	73,459	63,629	35	29
Boston Low Tension Wire Association	431	2,040		3	4
Charlestown Gas and Electric Company	75	75	56		2
Edison Electric Illuminating Company	46,171	242,821	447,040	196	741
Fire Alarm Branch (B. F. D.)	610	2,891	21,480	2	23
Homœopathic Hospital		77			1
Massachusetts Tel. and Tel. Company			700		
Mixer Brothers Company			1,016		
New England Tel. and Tel. Company	14,451	69,149	156,382	73	236
New York Central & Hudson River R.R.	175	700			1
Police Signal Service (B. P. D.)		960	21,000		13
Postal Telegraph Cable Company	9,733	20,020	11,098	27	3
Schoolhouse Commission		912			6
Telepost Company	2,902	2,972	3,100	11	2
Totals	84,033	416,076	758,609	347	1,061

Note.— Main and feeder tube and the solid system distribution boxes of the Edison Electric Illuminating Company are not included in the above figures. There were 10,508 feet of tube laid during the year; of this, 2,227 feet is reckoned as conduits; 18 new distribution boxes were installed during the year.

* In ducts of the New England Telephone and Telegraph Company.



PLATES NOS. 3 AND 4 — DORCHESTER AVENUE FROM ABBOTT STREET, WITH AND WITHOUT POLES AND WIRES.

able Showing Overhead Electrical Condition of Boston and Some of the Work Accomplished from 1894 to 1910, Inclusive.

YEAR.	Number of Poles in District.	Amount of Overhead Wire in Feet in the District, Approximate.	Number of Poles Set in City.	Number of Poles Standing in City.	Number of Defect Notices Sent Out.	Number of Defects in Notices.	Number of Defects Reported Corrected.	Number of Poles Removed.	Number of Fixtures Removed.	Amount of Wire Removed by Owners.	Amount of Wire Removed by Wire Department.	Total Amount of Wire Removed in Feet.
94.	333	5,174,550	.....	12,398	......	4,674	......	* 73	217	1,814,650	881,150	2,695,800
95.	94	9,916,860	.....	12,979	......	15,889	......	* 94	643	5,332,600	2,740,425	8,073,025
96.	182	13,719,670	.....	14,267	1,760	11,445	......	* 138	325	5,500,481	1,995,350	7,545,831
97.	134	2,721,550	.....	15,000	1,940	7,596	......	.....	774	7,993,712	1,663,650	9,637,362
98.	.....	....	424	15,355	3,693	15,963	3,029	* 52	661	2,034,420	836,100	2,871,720
99.	No	district this	year.	......	3,279	9,800	1,924	* 40	825	....	348,275	348,275
00.	129	500,000	1,116	......	2,147	5,041	4,270	215	535	20,160	272,150	292,310
01.	54	157,200	1,148	14,019	4,409	11,215	9,576	332	375	1,168,293	276,690	1,444,983
02.	183	350,988	† 738	14,607	3,419	8,256	9,410	150	162	3,976,124	263,325	4,239,449
03.	136	196,895	639	14,999	2,576	6,688	7,704	247	138	1,720,468	264,370	1,984,838
04	191	1,003,200	211	14,954	1,615	5,431	4,579	256	141	2,931,237	251,790	3,183 027
05	175	273,000	158	14,968	1,456	3,986	3,355	144	60	1,818,859	268,915	2,087,774
06.	225	746,000	130	15,000	1,554	3,513	3,623	98	32	3,773,420	381,750	4,155,170
07.	123	297,000	38	14,793	1,693	3,887	4,052	245	7	4,442,947	281,860	4,724,807
08.	154	248,000	121	14,648	2,510	5,362	5,081	266	.....	3,523,457	308,452	3,831,909
09.	107	299,800	536	14,773	2,599	5,835	7,052	411	.....	1,943,119	296,357	2,239,476
10.	185	648,770	323	14,762	2,655	7,278	5,266	334	.....	3,694,010	266,860	3,960,870
Totals...	2,405	36,253,483	5,582	14,762	37,295	131,859	68,921	3,095	4,895	51,687,957	11,597,469	63,336,626

NOTE.— No official survey was made of the pole lines throughout the entire city until 1900–01; this accounts or the somewhat incomplete and possible inaccuracy of these records for the years previous to 1900.

* Inside the prescribed underground district for this year only; number in rest of city not recorded.

† A different figure appears in the annual report for this year (998 poles being reported set and 270 removed). This was due to the record of permits issued, rather than the returns of work actually done, having been used.

Table Showing the Amount and Distribution of Boston's Electrical Power January 31, 1908.

	Total Rated Horse Power of Boilers.	Total Rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of Stations.
Boston Elevated Railway Company...........	39,138	64,950	66,149	625	5,401	226,607	10
Edison Electric Illuminating Company.........	25,456	71,200	749,087	9,169	9,200	35,953	13
Charlestown Gas and Electric Light Company..	475	140	....	....	80	503	....
Boston Consolidated Gas Company...........	1,500	3,100	96,170	604	121	486	1
Block Plant Electric Light Company..........	273	417	5,250	....	3	16	1
Sudbury Building..........................	202	230	656	....	30	140	1
Steam and Power Company..................	267	295	4,000	400	60	294	2
Hecht Building Plant.......................	300	200	2,400	240	32	234	1
Isolated plants *.........................	64,859	44,471	223,000	3,869	1,472	11,428	301
Totals................................	132,470	185,003	1,146,712	14,907	16,399	275,661	330

* The capacity of generators for isolated plants in kilowatts, 22,251.

Table Showing the Amount and Distribution of Boston's Electrical Power January 31, 1909.

	Total Rated Horse Power of Boilers.	Total Rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of Stations.
Boston Elevated Railway Company	41,244	74,950	73,703	685	6,439	271,204	10
Edison Electric Illuminating Company	32,642	87,200	824,478	8,813	9,859	38,626	13
Charlestown Gas and Electric Light Company	475	140	....	....	100	575	...
Boston Consolidated Gas Company	1,625	3,200	101,227	604	132	570	1
Block Plant Electric Light Company	273	417	5,250	....	3	16	1
Sudbury Building	202	230	688	....	30	140	1
Steam and Power Company	267	295	4,000	400	68	301	2
Hecht Building Plant	300	200	2,400	240	32	234	1
Isolated plants*	69,734	49,768	237,909	3,866	1,688	14,986	319
Totals	146,762	236,400	1,249,655	14,608	18,351	326,652	348

* The capacity of generators for isolated plants in kilowatts, 25,702.

January 31, 1910.

	Total Rated Horse Power of Boilers.	Total Rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of Stations.
Boston Elevated Railway Company	44,356	73,450	83,738	866	6,551	271,449	10
Edison Electric Illuminating Company	32,642	99,600	921,381	8,645	11,118	43,683	13
Charlestown Gas and Electric Company	....	....	10,485	311	202	1,223	...
Block Plant Electric Company	273	417	5,250	....	3	16	1
Sudbury Building	202	230	650	....	29	132	1
Steam and Power Company	267	295	4,000	400	63	313	2
Hecht Building Plant	300	200	2,400	240	32	234	1
Hanover Street Trust	200	385	2,000	8	26	71	1
Isolated plants*	69,606	48,927	234,790	3,521	1,634	14,642	322
Totals	147,846	223,504	1,264,694	13,991	19,658	331,763	351

* The capacity of generators for isolated plants in kilowatts, 25,370.

January 31, 1911.

	Total Rated Horse Power of Boilers.	Total Rated Horse Power of Engines.	Capacity in Incandescent Lamps.	Capacity in Arc Lamps.	Number of Motors.	Horse Power of Motors.	Number of Stations.
Boston Elevated Railway Company	44,356	74,950	84,813	947	6,587	271,545	10
Edison Electric Illuminating Company	32,624	99,200	996,738	8,885	12,154	52,147	16
Charlestown Gas and Electric Company	....	....	12,226	295	258	1,633	....
Block Plant Electric Light Company	273	417	5,250	....	3	16	1
Sudbury Building	202	230	578	....	38	135	1
Steam and Power Company	267	295	4,000	400	65	325	2
Hecht Building Plant	300	200	2,400	240	32	234	1
Hanover Street Trust	480	225	2,000	10	37	169	1
Isolated plants*	72,013	50,672	236,828	3,550	1,730	15,984	344
Totals	150,515	226,189	1,344,833	14,327	20,904	342,188	376

* The capacity of generators for isolated plants in kilowatts, 26,297.

Table Showing the Increase of Electrical Output from 1894 to January 31, 1910, Inclusive.

	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
Incandescent lights	219,653	285,155	324,271	357,838	424,443	499,906	660,882	739,779	782,711
Arc lights	6,598	7,915	8,172	9,584	13,094	12,796	12,830	14,055	13,365
Motors	4,036	4,682	(?)	6,447	7,070	7,779	9,037	9,480	11,632
H. P. of motors	(?)	(?)	(?)	48,641	84,002	90,890	102,562	145,565	164,625

	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.
Incandescent lights	792,059	874,539	971,711	1,060,878	1,146,712	1,249,655	1,264,694	1,344,833
Arc lights	14,001	14,441	15,271	15,163	14,907	14,608	13,991	14,327
Motors	12,344	13,250	13,724	14,948	16,399	18,351	19,668	20,904
H. P. of motors	168,500	179,910	192,493	234,316	275,661	326,652	331,763	342,188

INTERIOR DIVISION.

During the year the Edison Electric Illuminating Company have put in commission two new substations, numbered 36 and 37. Station 36, which is an A. C. substation located corner of Commonwealth avenue and Linden street in the Brighton district, takes the load formerly supplied by the old generating station (No. 32) on Cambridge street, Brighton, which has been discontinued. Current is supplied to this new station from the L street station of the Edison Electric Illuminating Company at a potential of 13,200 volts and has a capacity in step-down transformers of 2,400 kilowatts for commercial lighting and power service, and 495 kilowatts in mercury arc rectifiers for street lighting service, making a total of 2,895 kilowatts capacity; 2,300 volts is used for the commercial circuits.

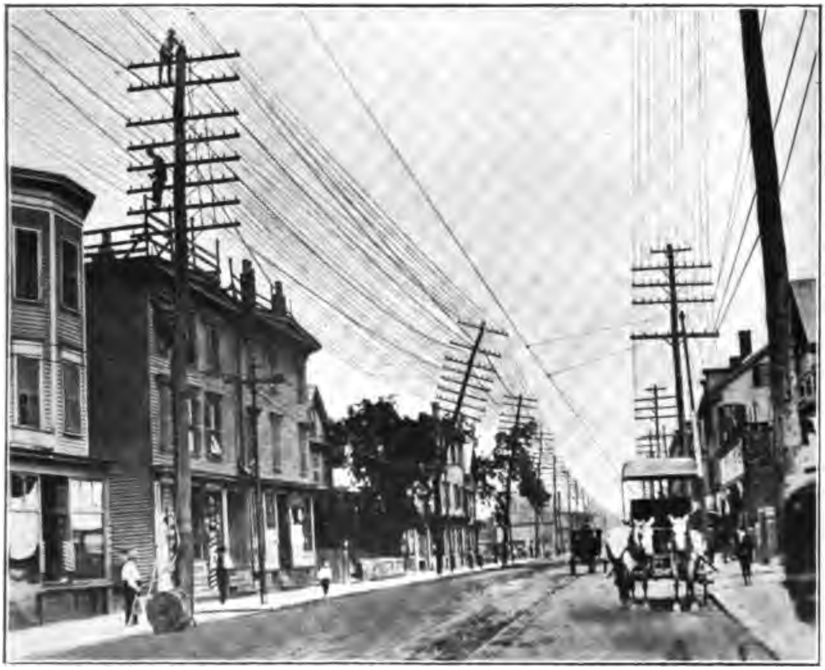
Substation 37 is located in the basement of the new Jordan Marsh Company building, Avon street. There is at present installed here a 1,000 kilowatt motor generator, transforming from 6,900 volts three-phase A. C. to 230 volts D. C. current.

The Boston Elevated Railway Company have added a third 1,000 kilowatt rotary converter at their Egleston square substation, corner of Washington and Bray streets, and they have at present in process of construction on O street, South Boston, a new A. C. central power station, which is to be built first for three 15,000 kilowatt turbo units, generating A. C. current at 13,200 volts, 25 cycles; later additions to be made as occasion requires. In connection with this station underground trunk line conduits will be run to various sections of the city and to the suburbs, the substations as now laid out being Egleston square, 5,000 kilowatts; Roslindale, 2,000 kilowatts; Coolidge's Corner, 4,000 kilowatts; Kendall square, 2,000 kilowatts; Arlington, 2,000 kilowatts; Malden, 4,000 kilowatts; and East Boston, 2,000 kilowatts.

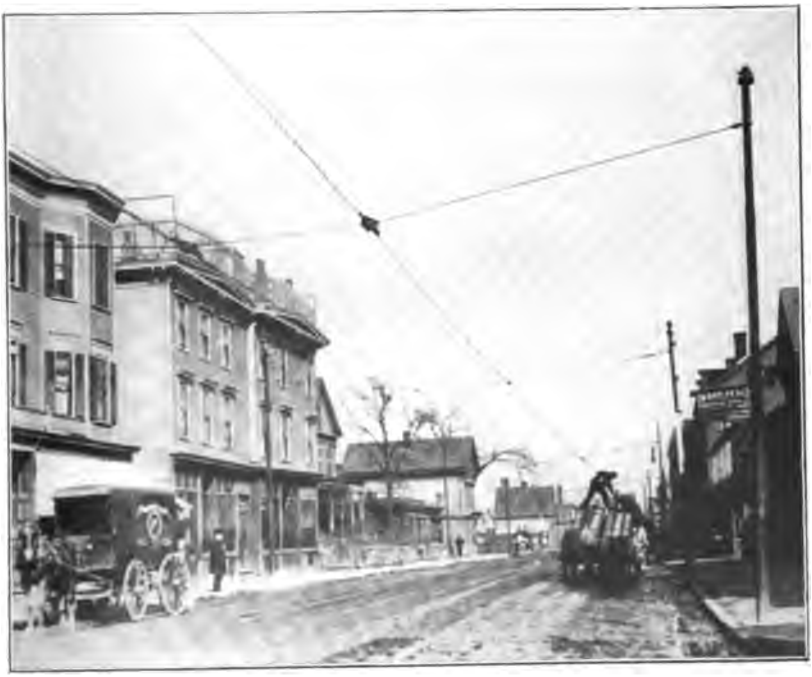
The provisions of chapter 450 of the Acts of 1904 relating to the inspection of theaters and halls have been complied with, and inspections to the number of 2,121 have been made during the year.

We have had fewer cases of failure on the part of those installing wiring and apparatus designed for light, heat or power purposes to properly notify this department than usual, and with a few exceptions such cases as have come to our attention were evidently due to an oversight or to lack of knowledge as to the necessity of notifying the department of the intention to perform work, rather than to any intention to evade the law. This improved condition is largely due to the provisions of chapter 347 of the Acts of 1908, which provides a fine of from $10 to $50 for failure to notify, and to the fact that a number of convictions obtained under same has had a salutary effect on those who, under conditions existing previous to said law going into effect, would in many instances evade the requirements by failing to send proper notification of work performed by them.

There were eighteen fires which started inside of buildings which were found to have been due wholly or in part to electrical causes. Of this number, but seven entailed an insurance loss, and the total insurance loss was but $3,413.99. There were also two electrical fires which started on the outside of buildings, one of which burned through to the inside of building. The combined insurance loss by these two fires was $523, making a total insurance loss by fires found by this department to be due to electrical causes to be $3,936.99. The most serious insurance loss was $1,288.36, same resulting from a slight fire in so far as actual burning was concerned, due to an electric flatiron being left in circuit becoming overheated and igniting wooden table upon which it had been carelessly left. Fire was extinguished by sprinklers overhead and loss given above was almost entirely due to water damage. The most serious of the fires caused an insurance loss of $1,177.87, and was the result of water leaking upon molding containing electric lighting wires, the insulation on wires breaking down, permitting current leakage to occur between wires of opposite polarity, in combination with the fact that after the fuses in cut-out had properly performed their duty, copper wire jumpers had been inserted in cut-out by parties presumably connected with the building. Of the balance of the fires causing insurance losses, one was due to carelessness on the part of a moving picture machine operator, loss being $520; one was the result of a water leak flooding a ceiling fixture on the floor below, causing a short circuit, and, while the fire itself was insignificant, an insurance loss of $184



(Taken day after windstorm while repairs were being made on poles and wires.)



PLATES NOS. 5 AND 6.—DORCHESTER AVENUE FROM DEXTER STREET, WITH AND WITHOUT POLES AND WIRES.

was paid; one was due to a defective motor rheostat, loss $145.86; one was due to improperly installed wiring, work being done by a moving picture machine operator without proper authorization, with a consequent loss of $76.87, and one was due to the burning out of the armature of a motor, neighboring woodwork being ignited and a loss of $21.03 resulting. Of the two fires that started on the outside of buildings, which resulted in insurance losses, one was due to a series arc lighting wire during a severe storm swinging into contact with building, arcing at points of contact, igniting woodwork and fire burning through to inside of building, causing insurance loss of $425; while the other was the result of an iron awning frame and service wires being in contact just before wires entered building, an insurance loss of $98 being paid for damage done.

During the year there were thirty-four accidents to persons, six of which resulted fatally. Eighteen of these accidents were to experienced men who were at work at the time on wires or electrical apparatus.

Of the fatal accidents, four were to employees of the Edison Electric Illuminating Company, who were at work on live wires on poles at the time; one was to an employee of the S. B. Condit & Co., and one to an employee of the Lundin Electric Company, both men at the time being at work in power stations, they being killed as results of their making accidental contacts with live metal on switch boards carrying current at extra high potential.

Of the sixteen accidents, none of which were fatal, to persons other than those at work on wires or electrical apparatus, nine were to mechanics in the employ of the Boston Elevated Railway Company, and employed at time of accidents on the elevated structure doing painting, carpenter work or track work; two were slight shocks received by two men at work on a new ventilator at a height of about 10 feet above roof, and who with their bare hands attempted to push some low potential wires out of their way; while the remaining five victims were a father and four children who were injured by contacts with a high potential wire which had burned off and fell to ground during a severe windstorm.

During the year there were 774 more notifications of new work than for the year previous, showing thereby a gain of a little less than 6 per cent. The number of inspections made showed an increase of 2,714 over last year, or a little more than 10 per cent, and the figures of the number of arcs, incandescents, motors, etc., the installation and wiring of which was inspected, all show increases over records for last year.

The following is a complete summary of the work of the Interior Division for the year ending January 31, 1911:

Notices of new work received	13,986
Buildings in which wiring was completely examined	2,009
Incandescent lights examined	1,276,827
Arc lights examined	7,055
Motors examined	7,381
Total horse power of motors examined	31,375¼
Services examined	842
Inspections made	29,949
Defects reported	1,416
Defects corrected	953
Other defects in process of correction	—

During the year there have been sixty-four fires or accidents to property, the origin of which was traced to electricity.

Fires in interior of buildings	18
Fires on outside of buildings	6
Fires at bridges	–
Fires on poles	8
Explosion in manholes	7
Miscellaneous, exterior	23
Miscellaneous, interior	2
	64

Table Showing the Number and Classification of Fires, etc., Due to Electrical Causes, from 1894 to 1910, Inclusive.

	1894.*	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.
Fires on outside of buildings	4	7	14	11	22	6	5	8	3	2	5	4	1	....	2	2	6
Fires in the interior of buildings	27	27	22	29	28	31	29	22	18	32	23	20	14	18	23	32	18
Fires on poles	5	4	3	3	6	1	7	10	3	2	5	3	2	5	5	9	8
Bridge fires	....	6	2	1	4	2	3	1	1	3	3	4	4	7	1	4	....
Deaths	....	....	3	3	....	3	4	6	2	....	3	2	2	7	1	3	6
Injuries	11	17	13	16	11	16	4	21	13	9	15	17	12	13	14	25	23
Manhole explosions	1	3	2	5	....	5	1	5	5	1	3	3	2	4	....	4	7
Miscellaneous	12	27	26	45	22	7	20	33	12	12	40	25	36	38	35	43	25

* Record shown for 1894 is for five months only.

The following is a record of isolated plants in operation in this city.

Number of plants,	344.		
“ boilers,	678,	total horse power,	72,013
“ engines,	605,	“ horse power,	50,672
“ generators,	599,	“ k. w. capacity,	26,297
“ motors,	1,730,	“ horse power,	15,984½
“ incandescents,	236, 828.		
“ arcs,	3,550.		

The record of new plants installed and inspected is as follows:

Number of plants,	25.		
“ boilers,	30,	total horse power,	3,110
“ engines,	26,	“ horse power,	2,246
“ generators,	29,	“ k. w. capacity,	1,192½
“ motors,	96,	“ horse power,	1,362½
“ incandescents,	6,013.		
“ arcs,	36.		

During the year ending January 31, 1911, there were three old plants inspected, the equipment of which was as follows:

Number of plants,	3.		
“ boilers,	9,	total horse power,	880
“ engines,	7,	“ horse power,	775
“ generators,	7,	“ k. w. capacity,	555
“ motors,	80,	“ horse power,	370¾
“ incandescents,	4,585.		
“ arcs,	6.		

The record of plants, the operation of which was discontinued during the year, is as follows:

Number of plants,	3.		
“ boilers,	8,	total horse power,	703
“ engines,	7,	“ horse power,	501
“ generators,	7,	“ k. w. capacity,	266¼
“ motors,	12,	“ horse power,	20
“ incandescents,	4,475.		
“ arcs,	7.		

Table Showing Inspection of Interior Wiring of Buildings, etc., from 1894 to 1899, Inclusive.

	1894.	1895.	1896.	1897.	1898.	1899.
Notices of new work received	1,428	3,984	4,383	5,799	5,355	5,749
Number of buildings, wiring completely examined	173	359	395	473	451	567
Incandescent lights examined	69,035	123,136	118,679	128,857	125,458	151,046
Arc lights examined	1,083	2,934	2,835	2,396	2,396	2,495
Motors examined	272	776	908	1,121	1,027	1,225
Total horse power of motors examined	840	83,566	3,247	3,739	5,681	6,967
Defects reported	610	4,890	9,505	2,318	1,661	2,369
Defects corrected	406	3,608	8,737	1,452	926	1,846
Services examined	....	....	....	1,988	1,283	1,116
Inspections made	....	....	....	....	9,472	12,473
Isolated plants in this city	....	....	....	....	....	205

Table Showing Inspection of Interior Wiring of Buildings, etc., from 1900 to 1905, Inclusive.

	1900.	1901.	1902.	1903.	1904.	1905.
Notices of new work received	5,859	9,107	10,272	8,590	7,983	9,317
Number of buildings, wiring completely examined	570	692	496	487	524	590
Incandescent lights examined	316,074	422,182	394,234	330,050	611,778	686,231
Arc lights examined	5,697	12,882	10,882	2,716	5,738	6,028
Motors examined	1,922	3,275	3,006	2,465	2,966	3,006
Total horse power of motors examined	11,150	16,444	12,531	11,151	11,790	11,667
Defects reported	2,274	2,349	1,810	1,274	1,073	1,289
Defects corrected	1,622	1,928	1,165	938	673	905
Services examined	1,176	1,654	1,174	819	571	595
Inspections made	12,609	23,111	23,962	19,635	19,224	23,588
Isolated plants in this city	271	281	283	274	274	276
Isolated plants inspected	....	34	6	20	14	15

Table Showing Inspection of Interior Wiring of Buildings, etc., from 1906 to 1910, Inclusive.

	1906.	1907.	1908.	1909.	1910.
Notices of new work received	10,412	9,465	11,044	13,208	13,986
Number of buildings, wiring completely examined	1,173	1,158	1,475	1,735	2,009
Incandescent lights examined	716,137	966,615	1,123,626	1,154,150	1,276,827
Arc lights examined	4,469	5,909	6,059	6,087	7,055
Motors examined	4,619	5,477	5,997	6,568	7,381
Total horse power of motors examined	21,725	23,347	20,197	21,477	31,375
Defects reported	1,425	1,945	1,776	1,526	1,416
Defects corrected	966	1,190	1,231	1,048	953
Services examined	780	773	675	847	842
Inspections made	27,286	28,265	24,624	27,235	29,949
Isolated plants in this city	298	301	319	322	344
Isolated plants inspected	90	79	41	22	28

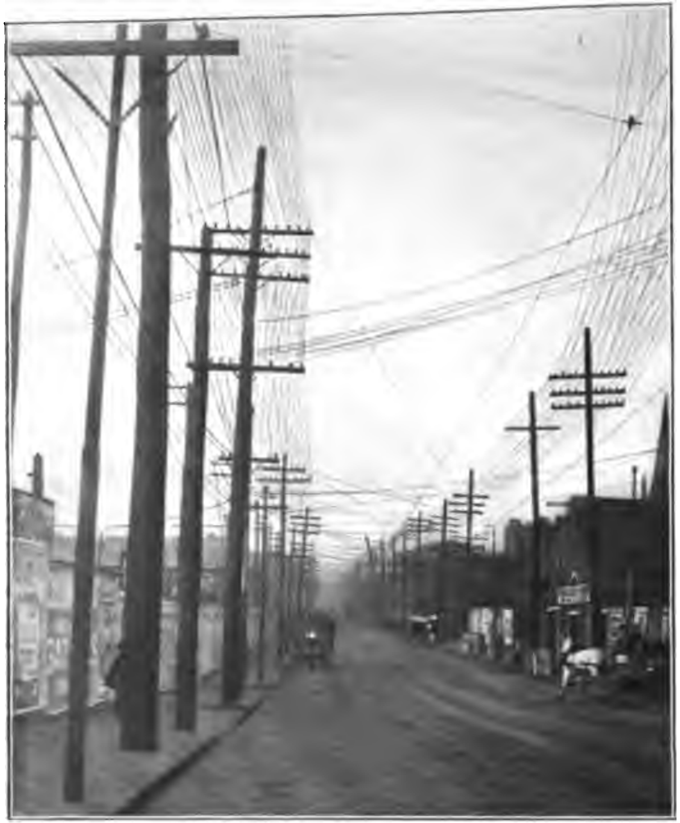


PLATE NO. 7.—DORCHESTER AVENUE FROM NEAR D STREET, WITH WIRES.

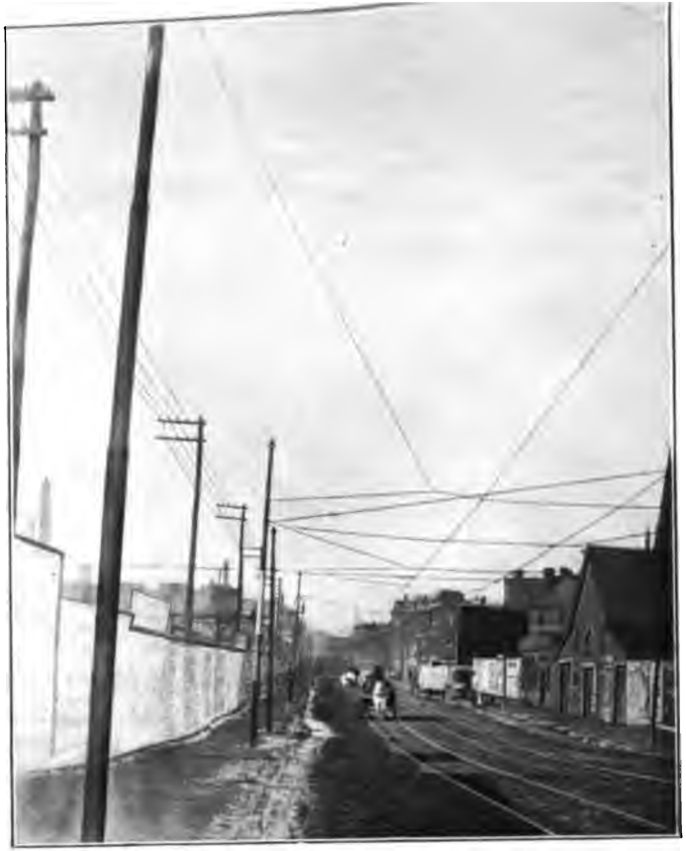


PLATE NO. 8.—DORCHESTER AVENUE FROM NEAR D STREET, WITHOUT WIRES.

FIRES AND MISCELLANEOUS TROUBLES DUE TO ELECTRICITY, FEBRUARY 1, 1910, TO JANUARY 31, 1911.

February 9, opposite No. 83 Fort avenue; tree fire caused by wire of street arc lighting circuit being in contact with limb of tree, with resulting arcing and burning, wire finally burning off and dropping to street.

February 9, corner Richmond and North streets, about 11 a. m.; burn-out occurred in series street arc lighting circuit in manhole; no damage except to cables.

February 10, shortly after 7 p. m., Boylston street, opposite Head place; burn-out and slight explosion in manhole due to breakdown in insulation of the underground conductors of the Edison Electric Illuminating Company in manhole.

February 11, 5.40 a. m., Box 521, No. 159 Green street; during severe storm wire of series street arc lighting circuit swung in contact with building, current grounding through wet woodwork of building and metal work, piping, etc., building being ignited thereby; fire had burned through into building before extinguished; insurance loss, $425.

February 22, Green street near Centre street; limb of tree breaking off during severe storm fell across wires of 2,300 volt A. C. circuit of the Edison Electric Illuminating Company, with resulting arcing and flashing at points of contact; limb of tree was dislodged from wires before serious trouble resulted.

February 22, 6.30 p. m., Box 274, corner Blue Hill avenue and Holborn street; during severe storm wire of street arc lighting circuit swung in contact with trolley wire and burned off; no damage except to wire in question.

February 22, about 6.29 p. m., Shawmut avenue and Ball street; during severe storm, wire of series street arc lighting circuit sagged and became crossed with telephone wire; damage slight; confined to wires mentioned.

February 28, in the neighborhood of 2 p. m., Bunker Hill car barns, Charlestown; during rainstorm, current grounded from trolley wire to building at point where trolley wire entered same; damage slight; fire department was called, but trouble was taken care of by one of the emergency crews of the Boston Elevated Railway Company.

March 1, 2.48 a. m., No. 68 Washington street, near

Union street, Charlestown; chemical and ladder carriage called on still alarm for fire in third story of building; attached to building was an iron bracket, and to insulator on same was attached an arc wire of the Charlestown Gas & Electric Company, during severe rainstorm, current grounded at insulator; building was ignited and fire burned through to inside of same.

March 18, 7.35 a. m., Box 67, No. 733 Washington street; armature and fields of an elevator motor burned out, otherwise no damage.

March 25, about 7.25 p. m., Eighth street and Dorchester avenue, South Boston; fire reported in manhole; same was burn-out in underground street arc lighting cable; no damage except to cable.

March 26, 8.40 p. m., Zeigler street station of the Edison Electric Illuminating Company; burn-out occurred in 500 kilowatt transformer; with the exception of loss of service caused by trouble, damage was confined to transformer in which burn-out occurred.

March 28, 2.55 a. m., junction of Tremont and West Springfield streets; fire in manhole, caused by burn-out in 250,000 C. M. underground main of the Edison Electric Illuminating Company; while trouble was in progress a slight explosion in manhole occurred, lifting manhole cover to a height of a foot or so above street.

April 2, 8.07 p. m., No. 146 Tremont street; resistance mounted in base of portable fan motor became overheated, causing considerable smoke and smell; no damage except to motor; two men of Engine 26 responded in answer to call of occupants.

April 2, at about 2.40 p. m., burn-out in underground electric feeders, followed by an explosion in manhole sufficient to throw manhole cover several feet in the air; no injuries to persons, and, beyond a broken pane of glass in nearby building, apparently no damage except to underground feeders and the loosening up of pavement about manhole; trouble occurred at junction of Franklin and Congress streets.

April 12, about 3.20 p. m., burn-out occurred in underground cables of the Boston Elevated Railway Company, in subway passing beneath Boston & Albany Railroad tracks in Allston; explosions occurred in two manholes of said company near scene of trouble. Trouble was due to workman at work drilling away concrete driving his drill into underground conduits, grounding current from cables thereby.

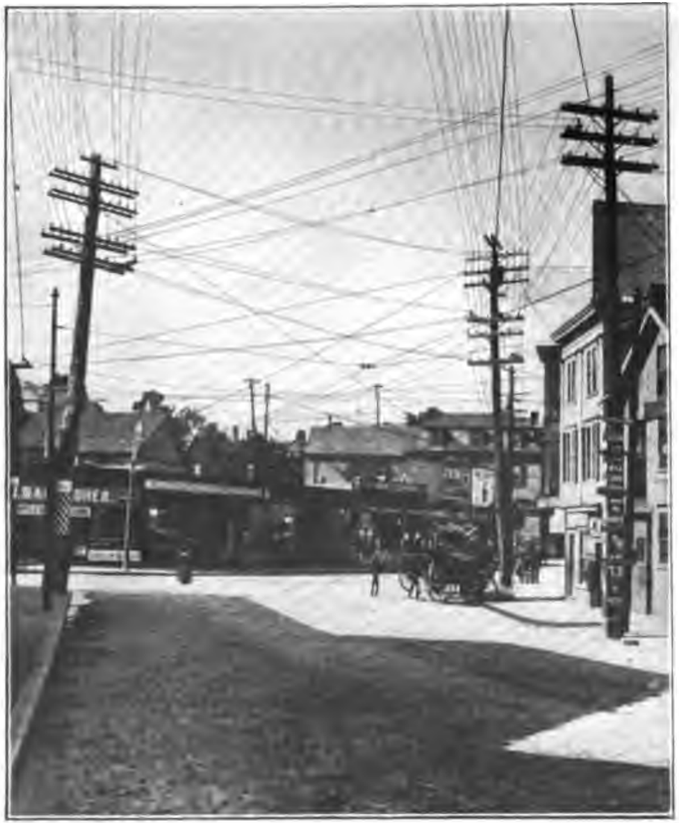


PLATE NO. 9. — ROXBURY STREET AND GUILD ROW, WITH WIRES.

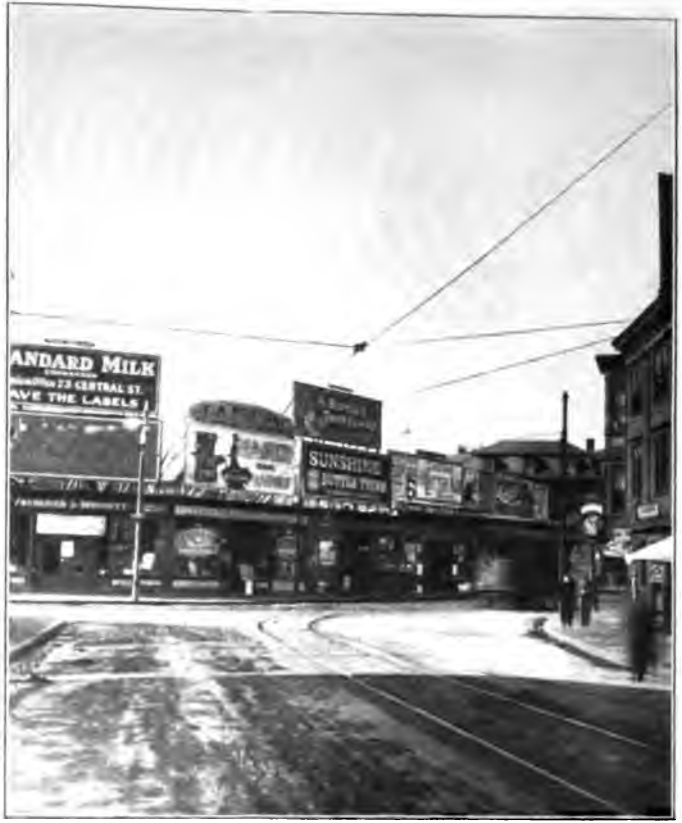


PLATE NO. 10.— ROXBURY STREET AND GUILD RCW, WITHOUT WIRES.

April 19, 9.22 p. m., Box 247, junction of Huntington avenue and Francis street; fire at street arc lamp pole due to breakdown of insulation of conductor at point where conductor which runs up pole was connected to underground cable; no injury except to wires and slight damage to pole.

April 29, 8.30 p. m., slight fire on elevated structure between City square station and drawbridge, Charlestown; due to small piece of resistance grid which fell from passing train to one of the cross ties of structure; as piece of grid was hot, cross tie was ignited, but was extinguished by a chemical extinguisher taken from one of the elevated cars before any damage resulted.

May 4, 12.20 p. m., No. 112–119 Salem street; armature of one horse power motor used for operating sewing machines burned out; neighboring woodwork burned and scorched for a few inches; no other damage; members of Engine 8 called on still alarm; insurance loss, $21.03.

May 5, 7 p. m., Box 52, No. 105 Summer street; starting rheostat used in connection with 10 horse power motor failed to operate properly; coils became overheated; insulation of wires connected to rheostat was ignited, as was also adjacent woodwork; damage insignificant except to rheostat and wires; insurance loss, $145.86.

May 18, 1.45 p. m., corner Huntington avenue and Longwood avenue; during severe rainstorm breakdown occurred in insulation of high potential cables just above where they left terminal standpipe on pole; damage confined to the melting of lead and the burning of insulation on wires for a few inches.

June 4, 6.37 p. m., Box 24, fire in moving picture machine booth at the Grand Theater, No. 135 Cambridge street; caused by overheating of an improperly made joint setting fire to insulation on wire, fire being communicated to moving picture films; damage confined to machine, films, etc., in booth; insurance loss, $76.87.

June 6, 8.03 a. m., Dover Street Station of the Boston Elevated structure; Ladder 3 called on still alarm on account of third rail insulator breaking down, with consequent severe arcing and flashing at point where breakdown occurred; services of the department not required.

June 11, 11.40 a. m., No. 116 Richmond street; short circuit between wires back of canopy of combination wall bracket melting hole in pipe and gas was ignited;

fire extinguished by occupants; no damage except to bracket and smoking up of wall for 2 or 3 feet.

June 14, 8.12 p. m., Box 17, Fire Department called to No. 39 Cross street, occupied as a restaurant; one of the proprietors attempted to remove a fuse from a plug cut-out; arcing occurred and in his alarm he gave an alarm from Box 17; no fire.

June 16, 8.30 p. m., Talbot avenue, just west of Norfolk street; breakdown occurred in insulation of arc circuit in arc lamp fixture on pole on southerly side of Talbot avenue; a telephone cable and ring wiring not permanently installed ran in close proximity to lamp fixture, cable and wiring having a wood sleeve or jacket over same where they passed fixture; current passed from fixture to cable and wires burning them off; fixture was blackened and lamp put out of commission for the night.

June 18, corner Massachusetts avenue and Harrison avenue; breakdown in insulation of street arc light circuit No. 477 occurred at point just above underground standpipe on pole and where connection was made with overhead wiring distributing from pole; insulation of wire burned off for several inches and lead of cable melted for a few inches, otherwise no damage; reported by Fire Department.

June 24, 5.45 a. m., Box 23, No. 24 Cambridge street; burn-out occurred in underground service wires entering basement of building; no damage except to service cable and wiring in the immediate vicinity of service cut-out.

July 4, at 10.06 p. m., Box 466, Beacham street, Charlestown; in stock room of the Boston Elevated Railway Company incandescent lamp was left in contact with wood partition, setting fire to same; damage slight.

July 4, at 10.55 p. m., Box 61; fire in manhole on Tremont street, at Hollis street, same containing wires and being the property of the Edison Electric Illuminating Company; burn-out followed by an explosion sufficient to lift cover off of manhole; flames issuing from manhole burned clothing somewhat and slightly burned Bernard E. Doherty, residing at No. 4 Pontiac street, who was passing by manhole at the time.

July 8, about 10 a. m., report received from Fire Department that a wire was burning tree on Centre street, opposite house of Engine 14; trouble was found to be due to one wire of primary alternating circuit No. 909 of the Edison Electric Illuminating

Company being in contact with tree; no damage except the slight burning of tree.

July 9, 6.12 p. m., Box 316, Grove Hall car barn of the Boston Elevated Railway Company; while electric car was being run back in car barn trolley wheel left wire and caught on an iron beam, trolley pole coming in contact with trolley wire at the same time; current passed from trolley wire to iron beam, thence to an inch pipe carrying signaling wires to ground; pipe burned off and wires contained in pipe also burned off; no other damage.

July 9, 8.08 p. m., Box 73, same given for fire in tree opposite No. 243 Shawmut avenue; due to arc wire of street lighting circuit being in contact with limb of tree; no damage except the burning of insulation of wire for two or three feet and the burning into limb of tree for several inches.

July 13, 8.40 p. m., tree fire opposite No. 28 Worcester street; same was due to wire of street arc light circuit being in contact with branches of tree; beyond the slight burning of branches of tree no damage done.

July 15, about 9 p. m., burn-out occurred in a 500,000 C. M. cable of the Boston Elevated Railway Company, just outside of their manhole at Harrison avenue and Massachusetts avenue, followed by a slight explosion in manhole of the same company located in Sheridan square.

July 27, about 5 a. m., corner of Commonwealth avenue and Pleasant street, Brighton; pole fire caused by pin breaking, permitting wire of 13,200 volt transmission circuit to drop on arm; pole was so badly damaged that it was necessary to replace same with a new pole.

July 29, about 11 p. m., No. 32 Hyde Park avenue; breakdown in insulation of secondary service wires of the Edison Electric Illuminating Company; same broke down where wires were in contact with iron frame of awning, near point of service wire entrance to building; awning set on fire and face of building burned and scorched for a space of about two by three feet; insurance loss, $98.

August 1, 7.35 p. m., Box 15, No. 69–75 Fulton street; breakdown in insulation of cable entering basement from underground at point just inside of building; damage slight.

August 20, about 9 a. m., Edward Everett square, Dorchester; members of Fire Department called on still alarm to electric light pole on account of burn-out in cable coming up from underground to feed same; no damage except to cable and slight damage to pole.

September 7, about 4.30 p. m., corner Minot street and Neponset avenue; wire of primary alternating circuit of the Edison Electric Illuminating Company swung in contact with iron trolley wire supporting pole of the Boston Elevated Railway Company, causing arcing and flashing at point of contact; no damage except the burning of insulation of wire for several inches.

September 18, 7.25 a. m., No. 1135 Washington street; slight fire due to water leak on floor above ceiling fixture, flooding fixture and causing a breakdown of insulation of wires in canopy; no damage except to fixture wire and slight burning of fixture block; insurance loss, $184.

September 20, 6.30 a. m., No. 173 Summer street; burn-out of field coils of elevator motor, due to current being left on fields all night; members of Fire Department called on still alarm; no damage except to motor.

September 26, 6.30 p. m., No. 99 Bristol street; members of Fire Department called on account of burn-out of 100,000 C. M. underground service of the Edison Electric Illuminating Company entering the ruins of building at 99 Bristol street, which was one of the buildings destroyed by conflagration of August 10, for which a general alarm from Box 58 was sounded; breakdown in service undoubtedly due to injuries sustained as a result of fire referred to; no damage done except to cable.

September 26, 6 p. m., Dorchester avenue, near Beals street; tree fire caused by breaking of a tree bracket or insulator permitting wire of street arc lighting circuit to get in contact with tree; no damage except slight burning of tree and insulation of wire.

October 1, 11.06 p. m., Box 36, No. 85 State street; fire started in light shaft on third floor. Electric lighting mains run in light shaft were badly affected by leaky skylight. Cut-out intended to protect mains had been made valueless as a protective device by copper jumpers being installed across cut-out. When trouble occurred on mains as a result of their damaged condition, fire followed, cut-out before mentioned being inoperative as stated; insurance loss, $1,177.87.

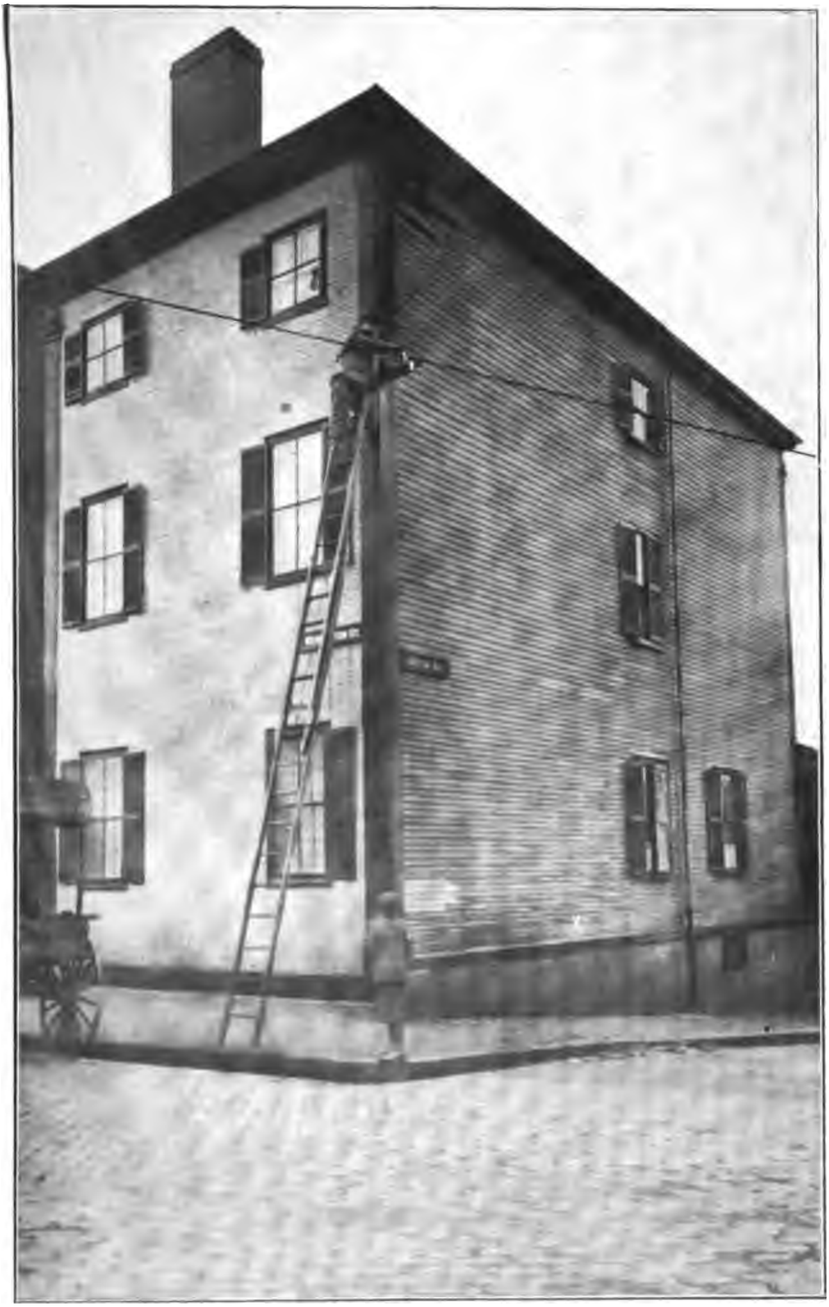


PLATE NO 11.—FIRE CAUSED BY WIRE COMING IN CONTACT WITH CORNER OF BUILDING. (EXTERIOR VIEW.)

October 7, 7.26 a. m., Box 720, Nashua and Causeway streets, North Union Station; breakdown of insulation on motor mains, with consequent leakage of current to ground; insulation of wire ignited and burned for a few inches and adjacent woodwork charred; no other damage. Current supplied from plant of the Boston & Maine Railroad.

October 7, 6.08 p. m., Box 312, opposite 875 Albany street; boys had taken old clothes and stuffed same as a dummy, and after playing with same on the street went to roof of building No. 875 Albany street and threw dummy from same, it lodging across high potential arc wires of the Edison Electric Illuminating Company running on pole line on said street; later, a severe rainstorm occurred, dummy became saturated with water, and severe arcing occurred at points of contact with dummy and wires, dummy being set on fire thereby; no other damage resulted.

October 22, about 6 p. m., Centre street near Park street, West Roxbury; top of pole carrying electric light, telephone and other wires, also a tree opposite on side of street, badly burned as a result of wire of high potential street arc lighting circuit being in contact with a guy wire which ran from pole to tree referred to; no other damage.

November 3, Dorchester avenue, opposite junction of Seventh and B streets; pole fire as a result of insulator pin breaking, wire of high potential arc circuit coming in contact with cross arm and pole; cross arm badly burned and pole burned to a depth of about 4 inches.

November 4, 6.25 p. m., Box 16, corner of North and John streets; on outside wall of building No. 6 John street was located an iron bracket for series incandescent tungsten lamp for street lighting purposes; breakdown of insulation occurred in conductors at point on wall near bracket; no damage except to wires; storming at time.

November 4, Dorchester avenue, just south of Old Colony avenue; breaking of insulator pin permitted wire of street lighting arc circuit to come in contact with feeder of the Boston Elevated Railway Company, also in contact with pole, with consequent arcing and flashing; no damage except to wires and slight burning of pole; severe storm in progress.

November 5, 12.24 a. m., Chemical 3 called on a still alarm for a fire on pole opposite No. 28 Charles River road, Charlestown; due to breakdown in insulation of street lighting arc circuit, just above standpipe, on pole in question; damage confined to cables and wires at point where trouble occurred and the slight burning of pole.

November 17, 9.30 p. m., Box 213, No. 5 George street; overheated rheostat for use in connection with ½ horse power, 110 volt A. C. motor; proprietor states that his premises had been entered by unauthorized persons, who probably threw on motor switch, supposing that same controlled lights, starting box thereby being made alive, overheated and burned out; fire consisted merely of burning out of rheostat.

November 19, shortly after 9 p. m., Nos. 14–16 Tremont row, Theater Comique Hall; fire occurred in moving picture booth, probably caused by operators inadvertently permitting inflammable film to come in contact with lamp house of moving picture machine; other than the destruction of four moving pictures films very little damage done; Fire Department called on still alarm; insurance loss, $520.

November 25, in the neighborhood of 1.19 p. m., Ladder 19 was called on still alarm to the corner of First and L streets on account of trouble with wires on side of pole; same consisted of breakdown of insulation, current grounding from primary alternating circuit to lead sheath of cables; no damage except to cables and slight burning on street side of pole.

November 30, shortly before 5 p. m., Dorchester avenue, near Rawson street; wire of street lighting arc circuit came in contact with top of gooseneck on arc lamp pole 2132, with consequent arcing and flashing and burning off of arc wire, the two ends falling to street; no other damage.

December 5, 6.19 a. m., Box 42, slight fire in subway at Park street, in temporary room used by subway contractors, same being due to defective rheostat which became overheated, insulation of wires leading into rheostat being ignited and woodwork in vicinity of rheostat being burned and scorched for a distance of several feet.

December 8, about 7.30 p. m., Columbia road near Mt. Vernon street; fire in street arc lamp pole, same apparently being due to collection of gas in bore of pole being ignited by lighted arc lamp on top of pole.

December 20, 2.40 p. m., Nos. 219–223 Tremont street; alarm from automatic Box 295–3; slight fire

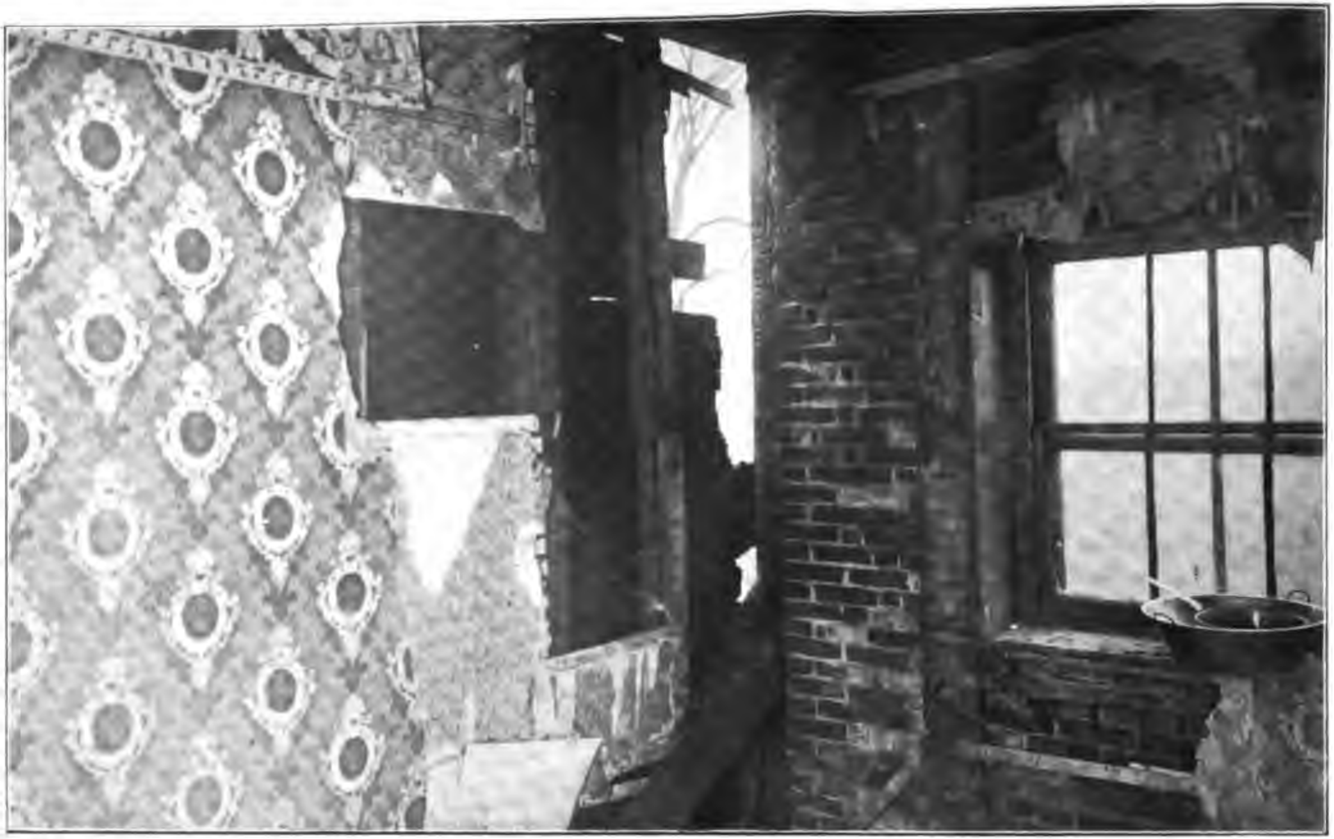


PLATE NO. 12.—EFFECT OF FIRE CAUSED BY WIRE COMING IN CONTACT WITH CORNER OF BUILDING DURING RAINSTORM.
(INTERIOR VIEW.)

due to 32 candle power incandescent lamp being left in contact with an overcoat; no damage except to overcoat.

January 3, 11.20 p. m., slight fire on outside wall of building corner North and John streets; same being due to breakdown in insulation of wires of high potential series circuit at a point just above standpipe attached to building, wires running from same to series incandescent lamp used for street lighting purposes, attached to bracket on building; no damage except the burning of insulation of wire for a foot or so and interruption of lighting service.

January 7, 8.02 p. m., automatic alarm 286–5, No. 37 Wormwood street; fire was caused by 2½ ampere electric flatiron being left with current on, iron becoming overheated and setting fire to wooden table upon which flatiron had been carelessly placed, heat, which caused automatic alarm to be given also, set off sprinkler, water from which quenched fire before the arrival of firemen; damage slight; insurance loss, $1,288.36.

January 27, opposite No. 51 Marcella street, tree fire; tree insulator became broken or detached, permitting wire of primary alternating circuit to come in contact with limb of tree, with consequent arcing and burning at point of contact, damage confined to the burning off of small limb of tree and burning of insulation of wire for a few inches.

January 29, 5.30 a. m., corner Franklin and Federal streets; Chemical 1 called on still alarm on account of smoke issuing from manhole belonging to the Massachusetts Telephone and Telegraph Company; trouble was due to burn-out in 750,000 C. M. tie feeder of the Edison Electric Illuminating Company, burn-out occurring in same at point where one of the conduits, entering Massachusetts Telephone and Telegraph Company's manhole, ran close to feeder of the Edison Electric Illuminating Company; hole melted in telephone conduit; smoke and flames entered the tube and passed into telephone manhole; no damage except to duct of telephone company and feeder of the Edison Electric Illuminating Company.

January 30, about 9.55 a. m., corner Battery and Commercial streets; explosion occurred in manhole of the Edison Electric Illuminating Company, same folowing a burn-out in tie feeder between manhole where explosion occurred and junction box on the opposite side of the street; damage confined to tie feeder and lifting of manhole cover and casting out of position, and the breaking of a few bricks on sidewalk where cover struck when it descended.

ACCIDENTS TO PERSONS DUE TO ELECTRICITY.

February 3, at about 9.45 a. m., Charles T. Taylor, an employee of the Edison Electric Illuminating Company, while working on a watt meter at the Scotia street station of the Edison Electric Illuminating Company, received slight burns to right hand and had his face scorched as a result of short circuit caused by copper connector, which he had in his hand, getting across both poles at meter.

April 4, Michael Glancy, a lineman in the employ of the Edison Electric Illuminating Company, while at work on pole located on Humboldt avenue, corner Brookledge street, made simultaneous contact with wire of a street arc lighting circuit and wire of primary A. C. circuit, receiving shocks thereby which caused his death.

April 5, G. T. Flanagan, an employee of the Boston Elevated Railway Company, while working on cable of said company on elevated structure near Beach street, received burns to the left wrist and the palm of left hand as a result of a short circuit caused by bare iron tie wire which he was using making simultaneous contact with third rail and grounded elevated structure.

May 12, in the neighborhood of 12.30 p. m., William Talbot, an employee of the Edison Electric Illuminating Company, while at work on high potential cable, issuing from standpipe on pole opposite No. 7 George street, Roxbury, received a severe shock of electricity causing him to fall unconscious to the ground; he was removed to the City Hospital where he died at 7.30 p. m. the following day.

May 13, about 9 a. m.; Merrill L. Gilman, a lineman in the employ of F. T. Ley & Co., while at work on pole No. 2389 W. D., opposite No. 18 Washington street, Grove Hall, received severe shocks of electricity, also burns to left foot and left hand. Gilman had a bit stock and bit in left hand and permitted bit to come in contact with high potential live wire, his left foot at the same time probably being in contact with iron terminal standpipe on pole.

May 17, about 10.30 a. m., William Crowley, a painter in the employ of the Boston Elevated Railway Company, was scraping one of the beams of elevated structure near the Battery Street Station preparatory to painting same. Along beam ran a conduit pipe which Crowley attempted to move to one side by the use of a pinch bar, which pinch bar he accidentally permitted to come in contact with third rail of system at the same time it was in contact with pipe and beam above referred to; as a result of short circuit thus caused, Crowley was severely burned about the face, hands and eyes.

May 23, 4.05 a. m., Thomas Davis, a lineman in the employ of the Boston Elevated Railway Company, and attached to their emergency wagon located at Bartlett street, Roxbury, was badly burned about the face and received burns to the hand as a result of short circuit caused by metal tool making simultaneous contact with trolley wire and metal sheathing of Tower "F," Roxbury, while Mr. Davis was attempting to take a metal protecting tube off of trolley wire near trolley wire frog at location referred to. He was removed to the City Hospital for treatment.

June 3, Henry C. Steaves, twenty-eight years of age, residing at No. 14 East Brookline street, while at work at station of the Edison Electric Illuminating Company, corner of Salem and Prince streets, came in contact with bus bar alive at a potential of 6,900 volts, and was killed.

June 10, William H. Barker and John A. Fraser, repairers in the Fire Alarm Department, while at work on fire-alarm box at Roger Clap School, Harvest street, received shocks and slight burns, wire of fire-alarm circuit being crossed with high potential wire on Allston street at the time.

June 13, at about 5 p. m., Dennis F. Courtney, a painter in the employ of the Boston Elevated Railway Company, while getting down from elevated structure to temporary platform beneath structure to put away tools for the night, made contact with his right hand with feeder cable, while his left hand at the time had hold of ironwork of elevated structure. He received a shock which caused him to fall to the street. Injuries consisted of broken thigh, bruises and burns on the palms and inside of fingers of both hands, burns being slight.

June 15, about 9.40 a. m., Daniel F. Kane, a lineman working for the F. T. Ley Company on the wires of the Edison Electric Illuminating Company, while at work on a 45-foot pole on Morton street, at Hunter street, Dorchester, attempted to push a 2,300 volt wire to one side, using his hand and trusting to the wooden pole for insulation from ground. Pole, which was evidently sappy or damp, acted as a conductor to ground, and when Kane attempted to lift wire with his right hand, he received severe shocks, also received slight burns on the middle finger of hand. Injuries not serious.

June 22, about 2 p. m., William T. Connolly, rooming at No. 21 Staniford street, city, an employee of the Edison Electric Illuminating Company as a patrolman, while on pole on Centre street, near corner of Church street, West Roxbury, came in contact with wires of a 4,000 primary circuit and wires of a 13,200 volt A. C. transmission circuit, receiving shocks and burns causing his death.

July 4, in the neighborhood of 2.45 p. m., Joseph C. Rettman and his four sons, Louis H. Rettman, 5 years, Henry C. Rettman, 7 years, Lawrence E. Rettman, 8 years, and William E. Rettman, 11 years, received shocks and burns from a wire of a primary alternating circuit of the Edison Electric Illuminating Company which had burned off and fallen to the ground on Amory avenue, opposite Amory terrace, Roxbury. With the exception of burns to Lawrence E. Rettman, which were very severe, injuries to victims were not serious. The burning off of wire was apparently due to the swinging together of two wires of primary circuit during severe high wind in progress at the time of accident.

July 21, about 4.15 p. m., Patrick McCristle, a lineman in the employ of the Edison Electric Illuminating Company, while at work on wires on a pole on Lamartine street, opposite Paul Gore street, made simultaneous contact with a high potential wire and grounded suspension wire of telephone cable, receiving shocks causing his death.

July 27, about 3.10 p. m., M. McDonough, an employee of the Boston Elevated Railway Company, while at work on elevated structure on Washington street, near Brookline street, received burns to his right hand and arm as the result of a short circuit caused by spike hammer which he was using making electrical

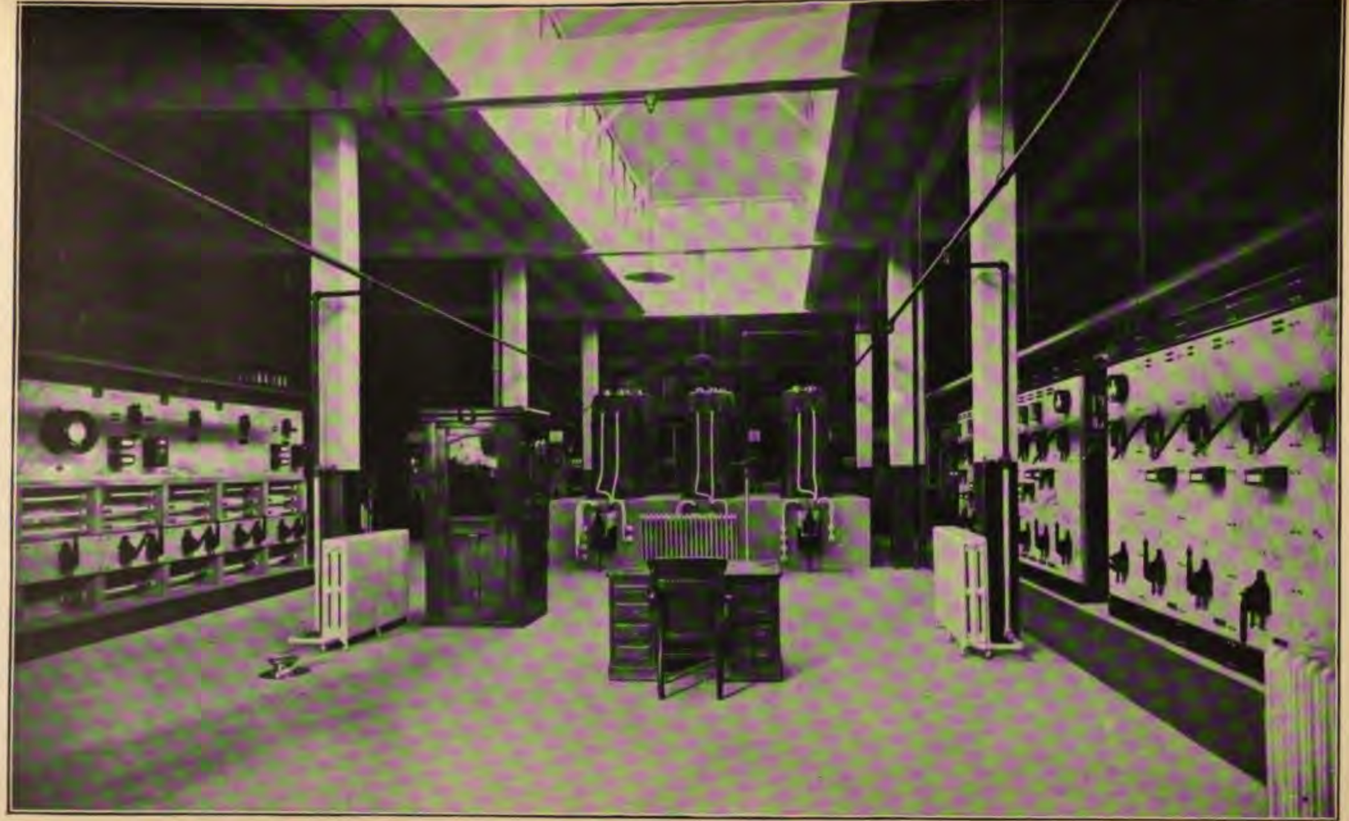


PLATE NO. 13.—INTERIOR VIEW OF NEW SUBSTATION OF THE EDISON ELECTRIC ILLUMINATING COMPANY, COMMONWEALTH AVENUE AND LINDEN STREET.

connection with third rail and at the same time making connection with a claw bar which was in contact with running rail of system. Burns not serious.

August 24, William Carmilla received slight burns to fingers of left hand as a result of short circuit while at work in the battery room of third station of the Edison Electric Illuminating Company. Burns were not serious enough to prevent Carmilla continuing his work.

August 24, Alexander Bouchier, a lineman in the employ of the Boston Elevated Railway Company, while working on trolley trough, Charlestown Bridge, was burned about the hands and eyes as a result of short circuit caused by hammer which he was using making simultaneous contact with trolley wire and nail which he was driving, said nail coming in contact with grounded metal work of bridge.

August 31, during the forenoon, David Soley and John Phinney, employees of Richard Moore, roofer, No. 3 Province court, while at work on roof of building No. 329 Washington street, at the time installing a metal ventilating shaft rising about seven feet above roof, took hold of some low potential wires, about ten feet above roof, for the purpose of pushing them one side, receiving slight shocks but no injuries.

September 7, James Riley, a trackman in the employ of the Boston Elevated Railway Company, while working on elevated structure at Haverhill and Causeway streets, at 11 a. m., received slight burns to thumb and index finger of right hand as a result of short circuit caused by claw bar which he was using slipping and making simultaneous contact with third rail and grounded structure.

September 15, George Smith of No. 136 Grove street, and H. Jacobson of No. 132 Essex street, Chelsea, while working on elevated structure at junction of Causeway street and Charlestown Bridge were burned as a result of wrench which they were using making simultaneous contact with third rail and grounded metal work of structure. Mr. Smith was burned about the face and both hands, and Jacobson was burned on the right side of face and right forearm.

September 16, David Grew, a telephone lineman, while assisting in the removal of telephone pole on Chelsea street, near Scott's court, Charlestown, seated himself astride a span wire running to nearby trolley pole for the purpose of making attachment to trolley pole to assist in lowering telephone pole to be removed. Grew was seated outside of trolley pole insulator, and span wire was alive, owing to defective insulator at trolley wire. Grew, making contact with grounded trolley pole, received shock which caused him to fall, but he was caught by other linemen before reaching the ground. Beyond a severe shaking up, Grew is said to have sustained no injury.

October 3, about 1.05 p. m., Patrick J. Kelly, a foreman in the employ of Ley Brothers, while at work on pole on Harvard avenue, near Commonwealth avenue, received a shock of electricity by coming in contact with two wires of 2,300 volt A. C. circuit of the Edison Electric Illuminating Company. Kelly received severe shocks and fell to the ground; in addition to burns on each arm, Kelly had injuries to head, face, arm and right hip.

November 15, shortly before 3 p. m., Constantine Proctor, an employee of the Lundin Electric Company, while at work in the eleventh station of the Edison Electric Illuminating Company, located in sub-basement of Houghton & Dutton's building, Tremont street, came in contact with live portion of so-called 6,900 volt circuit on switch board, with fatal results.

December 12, about 11.10 a. m., John Hurley, a carpenter, while employed on elevated structure near Thompson square, received burns to the face as a result of a short circuit caused by hammer which he was using at the time making simultaneous contact with third rail and grounded structure.

December 20, shortly after 12.30 p. m., H. F. Curran, residing at No. 13 Leyland street, Dorchester, and O. D. Moores, residing at No. 32 Maverick street, Chelsea, carpenters, working for the Boston Elevated Railway Company on elevated structure at Thompson square, Charlestown, received burns as a result of short circuit caused by chisel in the hands of one of the men making simultaneous contact between live third rail and grounded structure. Moores received burns of the first degree on the left side of the face, while Curran received burns of the second degree on the right hand and forearm.

January 25, 4.42 p. m., R. A. Keating, an employee of the Edison Electric Illuminating Company, while starting synchronous motor at L street station in the presence of a crowd of students who were visiting station for educational purposes, was crowded or pushed by students, and, in saving himself from falling, threw out his hand, which came in contact with live portion of switch. He received severe shocks, also slight burns to the thumb and forefinger of left hand.

LIST OF WIRE DEPARTMENT EMPLOYEES JANUARY 31, 1911.

No.	Occupation.	Salary per Annum.
1	Commissioner	$5,000 00
2	Chief Inspectors	2,000 00
1	Chief Clerk	1,600 00
1	Engineer	1,600 00
1	Engineer	1,500 00
3	Inspectors	1,500 00
1	Clerk and Inspector	1,500 00
4	Inspectors	1,300 00
9	Inspectors	1,200 00
1	Clerk	1,200 00
1	Stenographer	1,200 00
6	Inspectors	1,100 00
2	Inspectors	1,000 00
1	Provisional Inspector	1,000 00
1	Stenciler	1,000 00
2	Drivers	1,000 00
1	Clerk and Deputy Inspector	800 00
1	Deputy Inspector	800 00
1	Telephone Operator	600 00
1	Office Boy	312 00
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STATEMENT OF DEPARTMENT APPROPRIATION AND EXPENDITURES FROM FEBRUARY 1, 1910, TO JANUARY 31, 1911, INCLUSIVE.

Appropriation	$57,850 00

EXPENDITURES.

Salary and wages:	
James E. Cole, Commissioner	$4,986 28
Employees	45,078 98
Carried forward	$50,065 26

Brought forward	$50,065 26
Printing	1,823 70
Automobile	1,677 65
Horse	1,656 89
Travel	1,163 50
Telephone	530 55
Office	352 04
Stationery	171 13
Postage	109 50
Tools, etc.	87 08
Boston Fire & Police Notification Company	62 50
Advertising	41 90
	$57,741 70
Balance in treasury	108 30
	$57,850 00

LIST OF PROPERTY OF THE WIRE DEPARTMENT.

1 High potential testing apparatus.
1 Transformer.
1 Test board, capacity 220 volts, 300 amperes.
1 Auxiliary test board, capacity 220 volts, 150 amperes.
1 Reflecting galvanometer, condenser, telescope, scales, etc.
1 Set standard resistance coils.
1 Lamp stand and scale.
1 Shunt coil.
1 Set double connector posts.
1 Discharge key.
1 Reversing key.
1 Electrostatic Voltmeter, No. 70,647.
1 1,500-volt Direct Current Voltmeter, No. 3,438.
1 300-volt Weston Direct Current Voltmeter, No. 3,317.
1 300-volt Weston Direct Current Voltmeter, No. 6,020.
1 300-volt Weston Direct Current Voltmeter, No. 15,459.
1 300-volt Weston Direct Current Voltmeter, No. 15,455.
1 300-volt Weston Portable Direct Current Voltmeter, No. 15,456.
1 300-volt Weston Alternating and Direct Current Voltmeter, No. 1,044.
1 15-volt Weston Direct Current Voltmeter, No. 4,717.
1 500-amperes Weston Direct Current Ammeter, No. 2,428.
1 150-amperes Weston Direct Current Ammeter, No. 926.
1 50-ampere Weston Direct Current Ammeter, No. 2,381.
1 1,500-mil-ampere Weston Direct Current Mil-Ammeter, No. 2,433.
1 200-ampere T. & H. A. C. Ammeter, No. 29,421.

1 15-ampere T. & H. A. C. Ammeter, No. 21,507.
1 15-ampere Weston Direct Current Ammeter, No. 8,426.
1 Queen Testing Set, No. 389.
1 Standard resistance coil with wheatstone bridge.
1 Generator, 50,000 ohms.
1 Bichloride of silver battery, 150 cells.
4 Bichloride of silver batteries, each 60 cells.
2 Horses.
1 Automobile.
2 Express wagons.
2 Business wagons.
4 Sets of harnesses.
5 Robes.
7 Blankets.
2 Cameras (complete).
Miscellaneous tools used in connection with overhead construction.
Draughting instruments.

DESCRIPTION OF PLATES.

Plate No. 1.— Is a view of Dorchester avenue at Rawson street (1910 district), showing poles and wires after the severe storm of December 25 and 26, 1909.

Plate No. 2.— Is a view taken from same point as No. 1 after all poles and wires had been removed.

Plate No. 3.— Is a view of Dorchester avenue, north from Abbott street (1910 district), showing the condition of the avenue before the poles and wires were removed. This photograph was taken during repairs on the wires after a severe windstorm.

Plate No. 4.— Is a view taken from the same point as No. 3 after all poles and wires had been removed.

Plate No. 5.— Is a view of Dorchester avenue from Dexter street, north (1910 district), showing the condition of the avenue before the poles and wires were removed. This photograph was also taken during repairs on wires after severe windstorm.

Plate No. 6.— Is a view taken from the same point as No. 5 after all poles and wires had been removed.

Plate No. 7.— Is a view of Dorchester avenue from a point near D street, looking north (1910 district), showing the condition of the avenue before the poles and wires were removed.

Plate No. 8.— Is a view taken from the same point as No. 7 after all poles and wires had been removed. The poles and wires on the left of the photograph are on the property of the New York, New Haven and Hartford Railroad.

Plate No. 9.— Is a view of Roxbury street at Guild row (1909 district) showing the condition of the streets before the poles and wires were removed.

Plate No. 10.— Is a view taken from the same point as No. 9 after all poles and wires had been removed.

Plate No. 11.—Is the exterior view of a frame house, taken the day after a fire, caused by arc wire grounding during heavy rain and igniting building.

Plate No. 12.— Is the interior view of room on upper floor of building shown in Plate No. 11, showing the damage resulting from said fire.

Plate No. 13.— Is the interior view of the Edison Electric Illuminating Company's new substation at Commonwealth avenue and Linden street.

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